

HELMINTHOLOGICAL ABSTRACTS

incorporating

BIBLIOGRAPHY OF HELMINTHOLOGY

COMPILED FROM WORLD LITERATURE OF 1954



Prepared by the

**COMMONWEALTH BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)**

Published by the

COMMONWEALTH AGRICULTURAL BUREAUX, FARNHAM ROYAL, BUCKS., ENGLAND

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HELMINTHOLOGICAL ABSTRACTS *incorporating* BIBLIOGRAPHY OF HELMINTHOLOGY

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HELMINTHOLOGICAL ABSTRACTS

Vol. 23, Part 4

1954

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INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1954

Vol. 23, Part 4

339—Acta Medica Scandinavica.

- a. LUMME, R., MUSTAKALLIO, K. K., TELKKÄ, A. & TÖTTERMAN, G., 1954.—“Uropepsin excretion in pernicious tapeworm anemia.” 150 (4), 321-325.

(339a) Whereas the excretion of uropepsin by 17 patients with Addisonian pernicious anaemia was subnormal, it was normal in 50% of 45 patients with pernicious tapeworm anaemia. The severity of the tapeworm anaemia did not influence the excretion of uropepsin.

R.T.L.

340—Acta Parasitologica Polonica.

- a. GRABDA, J., 1954.—“Les parasites internes du rat musqué—*Ondatra zibethica* (L.) des environs de Bydgoszcz (Pologne).” 2 (1/6), 17-38. [Polish & Russian summaries pp. 37-38.]
b. PATYK, S., 1954.—“Znaczenie odczynu śródskórno-powiekowego dla diagnozy hemonchozy u owiec i kóz.” 2 (1/6), 53-64. [English & Russian summaries pp. 63-64.]
c. KASPRZAK, W. & PAWŁOWSKI, Z., 1954.—“Laboratoryjne metody koprolologiczne w świetle literatury i badań własnych.” 2 (1/6), 97-127. [English & Russian summaries pp. 126-127.]

(340a) The nine helminth species collected by Grabda from 106 *Ondatra zibethica* in Bydgoszcz included *Psilotrema pharyngeatum* n.sp. It differs from *P. spiculigerum* by the larger size of the ventral sucker (0.29-0.39 mm. by 0.27-0.39 mm.), the larger fleshy pharynx (0.25-0.27 mm. by 0.24-0.26 mm.) and the more voluminous copulatory bursa and testes. The oral sucker is feebly developed and often nearly invisible. Two specimens of an unidentified species of *Echinoparyphium* found in the small intestine and an unidentified metacercaria encysted in the mesentery are figured.

G.I.P.

(340b) The intradermo-palpebral reaction as a diagnostic test for haemonchiasis was used on 59 goats and 135 sheep. The best results were obtained with 0.3 ml. of the antigen in physiological saline at a dilution of 1:500 or with 0.5 ml. at 1:1000. An early positive reaction was obtained in 105 animals; of these 95 were autopsied giving full confirmation. Twenty-three early positive reactions occurred in the absence of *Haemonchus contortus* from the abomasum and duodenum. The test is specific and more sensitive than intradermal injection. A two phase intradermo-palpebral reaction obtained in 11 animals was confirmed at autopsy in five cases only and cannot be considered as specific. The strength of the reaction is influenced by the duration of the infection but not by its intensity.

G.I.P.

(340c) For the detection of ova in faeces seven different methods were tested. The Rivas method gave the highest results for *Trichuris* (88%), but the method of Bass-Fülleborn or of Faust was better for other helminths. *Ascaris* ova were most frequently found in direct smears. The best results (94%) for both ova were obtained by the combination of the three methods: Rivas, Faust and direct smears, stained with haematoxylin after Lawless.

G.I.P.

341—Acta Zoologica. Budapest.

- a. ANDRÁSSY, I., 1954.—“Revision der Gattung *Tylenchus* Bastian, 1865 (Tylenchidae, Nematoda).” 1 (1/2), 5-42.

(341a) The genus *Tylenchus* is subdivided into four new subgenera: *Tylenchus* with type *T. (T.) davainii* Bastian, 1865, *Aglenchus* with type *T. (A.) agricola* de Man, 1884, *Filenchus* with type *T. (F.) filiformis* Bütschli, 1873, and *Lelenchus* with type *T. (L.) leptosoma* de Man, 1880. The differential characters of the subgenera are given and keys to the identification of the twenty species which are included in the genus *Tylenchus*. These include three new species, *T. (A.) thornei* n.sp., *T. (F.) orbus* n.sp. and *T. (L.) discrepans* n.sp. Three species are renamed; these are *T. (T.) kirjanovae* for *T. uncinatus* Kirjanova, 1951, *T. (F.) duplexus* for *Psilenchus duplexus* Hagemeyer & Allen, 1952 and *T. (L.) infirmus* for *Anguillulina leptosoma* f. *minuta* Andrassy, 1952.

J.B.G.

342—Afrique Française Chirurgicale.

- a. LOMBARD, P., FRAILONG, J., THIODET, J. C. & LEGENISSEL, M., 1954.—“Echinococcose vertébrale.” 12 (2), 195-197.
 b. BOURGEON, R., PIETRI, GUNTZ & GUSTIN, 1954.—“La cholangiographie, méthode de découverte des kystes hydatiques dissimulés du foie. (Nouvelles observations).” 12 (2), 200-201.
 c. BOURGEON, R., PANTIN, GUNTZ & STOPPA, 1954.—“Echinococcose du bassin. Désarticulation inter ilio-abdominale. Résultat éloigné.” 12 (2), 201-202.
 d. BOURGEON, R., PIETRI, PANTIN & CATALANO, 1954.—“Compression de la branche gauche du canal hépatique par kyste hydatique. Ectasie résiduelle de tout l'arbre biliaire gauche.” 12 (2), 215-216.
 e. AUBANIAC, R., 1954.—“Kyste hydatique musculaire suppuré, par ouverture d'un ganglion tuberculeux dans sa cavité.” 12 (2), 224-225.
 f. DELVOYE & GILLOT, 1954.—“Torsion d'un kyste hydatique du grand épiploon.” 12 (2), 232-233.

343—Agricultural Gazette of New South Wales.

- a. VALDER, P. G., 1954.—“Diseases of clovers in New South Wales.” 65 (9), 465-471, 501.
 b. ANON., 1954.—“Fluke in cattle.” 65 (9), 488.
 c. ANON., 1954.—“Bluestone for black disease and fluke.” 65 (10), 514, 513.

(343a) In New South Wales, root rot has been recorded on white and subterranean clovers but is rarely of any importance. The stem nematode, *Ditylenchus dipsaci*, has been observed in red and white clovers in the Berry and Nowra districts and may cause the death of many plants in low-lying paddocks. To control the disease, potatoes, maize, oats and other non-susceptible crops should be grown for at least three or four years and lucerne, clovers and medics growing on headlands and along fences should be removed.

R.T.L.

(343b) There is a very high incidence of fluke in cattle at Cooma. It is recommended by the New South Wales Division of Animal Industry that cows to be treated with carbon tetrachloride should be allowed unlimited bone meal or other suitable substitute for several weeks before treatment. Cattle should receive 50 c.c. of a mixture of carbon tetrachloride with four parts of liquid paraffin and younger stock in proportion according to age and size. Hexachlorethane in a mixture of 1 lb. with 1½ oz. bentonite and 25 oz. water is safer for debilitated stock. The dose is 3 oz. for calves three months old and 6½ oz. for grown cattle.

R.T.L.

(343c) This article, intended for owners of stock in fluke-infected areas, advises the use of vaccination against black disease and regular drenching with carbon tetrachloride against fluke infections. This should be done at frequent intervals in bad areas. Mollusc control is very important; copper sulphate in one to two parts per million is recommended as the most effective measure.

G.I.P.

344—Agronomy Journal.

- a. HANSON, C. H., ROBINSON, H. F. & WELLS, J. C., 1954.—“Inheritance of reaction to two forms of root-knot nematodes, *Meloidogyne incognita* and *M. incognita* var. *acrita*, in Korean lespedeza.” 46 (10), 446–448.
- b. WALLACE, A. T., 1954.—“An association between narrow leaves and root-knot nematode resistance in flue-cured tobacco.” 46 (10), 468–469.

(344a) The authors tested plants from 83 families in the F_5 generation, derived from a cross between susceptible (F.C. 31850) and resistant (Rowan) lespedeza, for resistance to the root-knot nematodes *Meloidogyne incognita* and *M. incognita* var. *acrita*. The seedlings were scored for resistance after 13 weeks growth. It is concluded that a high proportion of the variation in resistance is genetic in nature and that selection among families would be effective. A high positive genetic correlation for reaction to the two nematodes is considered to indicate that certain genes for resistance to one of the nematodes also confer resistance to the other. Chi-square tests gave no indications of linkages which would hinder simultaneous selection for resistance and flower colour.

M.T.F.

(344b) Commercial varieties of *Nicotiana tabacum* are all susceptible to root-knot nematodes, but good resistance has been shown by an introduction which has leaves too narrow to be commercially useful. Wallace carried out an experiment to provide data which could be used to estimate the genotypic correlation between leaf width and root-knot resistance and also to estimate the genetic variances of these characters. The genotypic correlation between narrow leaves and nematode resistance was 0.3. No association was shown between leaf length and resistance but there was positive correlation between leaf length and width. The genetic variances estimated indicate that wide leaved root-knot resistant strains can probably be isolated.

M.T.F.

345—Algérie Médicale.

- a. THIODET, J., 1954.—“Le traitement médical de l'hydatidose. (1ère note).” 58 (4), 311–313.

346—Allahabad Farmer.

- a. SYAMAL, N. B. & SINHA, S. S. P., 1954.—“Occurrence of nematodes on okra (*Hibiscus esculentus*) in Bihar and its control measures.” 28 (2), 50–51.

(346a) In Bihar, the rainy season crop of okra (*Hibiscus esculentus*) becomes intensely chlorotic and stunted. The root system is distorted and warty and is heavily infected with *Heterodera radicola*. Although the mosaic symptoms in the leaves may be due to Hibiscus Virus I the authors believe that the nematodes are partly responsible and recommend that the soil be disinfected by spreading a two-inch layer of dried leaves and straw on infected land. By burning this the nematodes will be killed as they mostly inhabit the upper layers of the soil.

R.T.L.

347—American Journal of Clinical Pathology.

- a. JONES, C. A. & ABADIE, S. H., 1954.—“Studies in human strongyloidiasis. II. A comparison of the efficiency of diagnosis by examination of feces and duodenal fluid.” 24 (10), 1154–1158.

(347a) Jones & Abadie have compared the efficiency of multiple stool examinations and duodenal aspiration for the detection of *Strongyloides stercoralis* infection. All specimens examined were from persons known to be infected. Of 1,874 faecal specimens from 194 patients only 27% was positive, whereas 68% of 263 specimens of duodenal fluid from 145 patients was positive. Of 144 examined by both methods 72% was diagnosed by the first and 88% by the second method. The authors consider that for the evaluation of the efficacy of treatment at least six faecal examinations should be made on consecutive days at the end of treatment and repeated one month later, or that three duodenal intubations should be examined immediately after treatment, followed by two more at intervals of one week and one month.

S.W.

348—American Journal of Diseases of Children.

- a. MERRILL, G. G., 1954.—“Symptoms of ascariasis, with special reference to convulsions.” 88 (3), 294–297.

349—American Journal of Tropical Medicine and Hygiene.

- a. GARFINKEL, B. T., ALVAREZ, M. & OSEASOHN, R., 1954.—“The role of *Endamoeba histolytica* and *Trichuris trichiura* in bloody diarrhea of children in Puerto Rico.” 3 (6), 985–987.
b. LICHTENBERG, F. & LINDENBERG, M., 1954.—“An alcohol-acid-fast substance in eggs of *Schistosoma mansoni*.” 3 (6), 1066–1076.

(349b) The Ziehl-Neelsen technique for staining acid-fast bacteria, as modified by Lichtenberg & Lindenberg for staining *Schistosoma mansoni* eggs in dry faecal smears, involves preliminary immersion in dilute hydrochloric acid, washing in tap-water, staining in Ziehl's carbol fuchsin, prolonged differentiation in weak acid alcohol and thorough counterstaining in carbol methylene blue. It imparts a brilliant red stain to the shell and to the miracidium if the egg is intact. The detection of eggs in faecal smears increased from 24.1% to 46.4% and from 32.6% to 43.3% when these were subjected to the new technique. Tissue sections were stained by Lillie's (1948) modified Ziehl-Neelsen technique. This coloured the shells red but failed to stain the contents, showing that although the egg-shell is weakly positive under all circumstances, the miracidium is strongly positive when the shell is intact but negative when it is broken. Immersion of sections before staining in sodium hydroxide, hydrochloric acid, lipid solvents or detergents failed to alter appreciably the staining reaction except when the sections were soaked in 22% hydrochloric acid for 24 hours. The authors conclude that the eggs of *S. mansoni* constantly display, both in tissues and in stools, an alcohol-acid-fast substance, one variety localized in the shell and showing a high degree of stability (substance C), and another (substance M) localized in the miracidium, the demonstration of which depends on the integrity of the egg capsule.

M.MCK.

350—American Journal of Veterinary Research.

- a. REFUERZO, P. G. & ALBIS-JIMENEZ, F. S., 1954.—“Studies on *Neascaris vitulorum*. III. Further observations on inoculation of calves with notes on prenatal infection.” 15 (57), 532–534.
b. TURNER, J. H. & COLGLAZIER, M. L., 1954.—“Control of pasture-acquired infections of *Nematodirus spathiger* and *Haemonchus contortus* in lambs with phenothiazine-salt mixture.” 15 (57), 564–573.

(350a) Twenty calves of three breeds, all between one and 13 days old, were each fed a single dose of 5,000 infective *Neascaris* ova, but no eggs were found in their faeces up to 120 days after infection. 35 cases of ascariasis among cattle (mostly Red Sindhi), Carabao and Indian buffalo calves within 14–30 days of birth are reported. The early appearance of eggs or ovigerous worms in these calves is attributed to prenatal infection which is believed to be the usual method of transmission of *N. vitulorum*. Postnatal and prenatal infection and the migratory behaviour of the ascaris larvae in the host are discussed.

D.M.

(350b) Similar pasture trials on 12 lambs were carried out during two successive grazing seasons to test the efficacy of a 1:9 phenothiazine-salt mixture against combined natural infection of *Nematodirus spathiger* and *Haemonchus contortus*. Eight lambs were grazed on a contaminated pasture, four having access to the phenothiazine-salt mixture, and four to salt only. Four lambs were used as a control on a clean pasture. The treated lambs showed a lower degree of parasitism and better weight gains than the untreated ones but the control lambs showed the greatest weight gains. The only fatalities were in the untreated group on contaminated pastures, in which two died and one was killed *in extremis*. Weekly faecal egg counts indicated that in lambs with mixed infections, *H. contortus* reversed the normal, self-limiting course of four weeks for *N. spathiger* infections, and caused exacerbation and prolongation of *Nematodirus* disease. The resistance of the lambs to *N. spathiger* seems to have

been lowered by the presence of many *H. contortus*. The results indicate that the phenothiazine-salt mixture has a dual beneficial role, i.e. of directly limiting the numbers of *N. spathiger* and of indirectly controlling the lowered resistance to *N. spathiger* due to the concurrent infection of *H. contortus*. The advantages of medication, although marked, are insufficient to offset the disadvantages of a heavy exposure to parasitism.

D.M.

351—American Midland Naturalist.

- a. MATHERS, C. K., 1954.—“*Haemopsis kingi*, new species (Annelida, Hirudinea).” 52 (2), 460–468.
- b. DORAN, D. J., 1954.—“A catalogue of the protozoa and helminths of North American rodents. II. Cestoda.” 52 (2), 469–480.
- c. COIL, W. H., 1954.—“Contributions to the life cycles of gorgoderid trematodes.” 52 (2), 481–500.

(351a) The morphological and anatomical features of the leech *Haemopsis kingi* n.sp. from Silver Lake Fen, along the shore of Silver Lake, Lake Park, Iowa, are figured and described [but the characters by which it is differentiated from allied American species are not indicated].

R.T.L.

(351b) This catalogue of the cestodes of North American rodents lists 130 items. Each item is cross-referenced to a relevant item in a list of published works arranged alphabetically under authors.

R.T.L.

(351c) *Cercaria lamsilae* n.sp., a non-cysticercous macrocercaria occurring as a natural infection in the clam *Lampsilis siliquoidea* in Lake Erie, is differentiated from *C. eriensis* by its shorter body, slightly shorter stylet which has lateral wings and slender point and by a different disposition of the sensory papillae on the oral sucker [figured but not described]. The flame cell formula of *C. lamsilae* is $2[(11+14+12)+(12+12+14)]$ while that of *C. eriensis* is $2[(12+12+12)+(12+12+6)]$. The metacercaria of *C. lamsilae*, of *C. eriensis* and of a new gorgoderid, encysted in *Ligumia nasuta* and tentatively named *Metacercaria quadraspinis*, are described and figured. The presence of large spines dorsal to the oral sucker differentiates *M. quadraspinis* from other gorgoderids. The systematic and evolutionary significance of differences in the excretory system in gorgoderid cercariae are discussed.

R.T.L.

352—Anales de la Escuela Nacional de Ciencias Biológicas. Mexico.

- a. CABALLERO y C., E., 1954.—“Helminths of the República de Panamá. X. Algunos tremátodos de *Chelone mydas* (L.) tortuga marina comestible del Océano Pacífico del Norte. la parte.” 8 (1/2), 31–58. [English summary p. 56.]

(352a) *Pleurogonius grocotti* n.sp. and eight known species of trematodes are described and figured from the green sea turtle, *Chelone mydas*, from the North Pacific Ocean. *P. grocotti* is distinguished from all known species of *Pleurogonius* by the presence of a long cirrus pouch and metraterm. Caballero considers *Pyelosomum longicaecum* Luhman, 1935 and *P. amblyrhynchi* (Gilbert, 1938) Ruiz, 1946 synonyms of *P. cochlear* Looss, 1899, and *Rhytidodes secundus* Pratt, 1913 a synonym of *R. gelatinosus* (Rudolphi, 1819) Looss, 1901.

R.T.L.

353—Annales Biologicae Universitatum Hungariae.

- a. ANDRÁSSY, I., 1954.—“Parasitische Nematoden aus der Wurzel der Baumwolle.” 2, 3–7. [Hungarian & Russian summaries pp. 5–6.]
- b. ANDRÁSSY, I., 1954.—“Drei neue Arten aus der Superfamilie Tylenchoidea. Nematologische Notizen. 3.” 2, 9–15. [Hungarian & Russian summaries pp. 14–15.]

(353a) Andrassy found *Panagrolaimus rigidus*, *Cephalobus persignis*, *Chiloplacus irilineatus*, *Aphelenchus avenae* and *Aphelenchoides limberi* in the roots of cotton. He gives a list of 26 other species which have been found associated with roots of cotton.

J.B.G.

(353b) *Tylenchorhynchus quadrifer* n.sp. found around the roots of various legumes, differs from *T. claytoni* in having more longitudinal furrows (60 to 29) and in some other characters. *Radopholus gigas* n.sp., associated with roots of water-lily, differs from the two other species in the greater length and sharper tail. *Deladenus saccatus* n.sp., associated with the roots of *Festuca* sp. and of a legume, is much smaller than the other species, has no knobs on the spear and has a post-vulvar sac. J.B.G

354—Annales de Médecine Vétérinaire.

- a. POUPLARD, L., 1954.—“La strongyloïdose du mouton.” 98 (5), 259–266.

(354a) During a period of 27 days a sheep with severe nematode infections received phenothiazine in three treatments, each lasting three days, at the rate of 5 gm. per day on the first two occasions and 10 gm. per day on the third occasion. The number of eggs per gramme of faeces of *Strongyloides papillosus* decreased from 1,600 before treatment to 200 after, of *Oesophagostomum* and trichostrongyles from 3,000 (up to 6,000) to 100, of *Chabertia ovina* from 600 (up to 1,000) to 200, and of *Trichuris ovis* from 300 to 200. A gentian violet mixture given eight days after the last phenothiazine treatment had no further effect, egg counts being on the whole a little higher. The author concludes that good hygiene is the only means of controlling *Strongyloides* infections. M.MCK.

355—Annales du Musée Royal du Congo Belge. Série in-4°, Sciences Zoologiques.

- a. BRIEN, P., 1954.—“Deux formes larvaires de trématodes congolais. La parthénogonie—le cycle des cellules germinales.” 1, 153–162.
- b. EZZAT, M. A. E., 1954.—“On some helminth parasites from Procaviidae.” 1, 169–179.
- c. SCHWETZ, J., 1954.—“Quelques considérations sur le problème de la classification-nomenclature des Planorbidæ (Planorbinæ et Bulininae) de l'Afrique éthiopienne.” 1, 274–277.
- d. SCIACCHITANO, I., 1954.—“Contributo alla conoscenza degli irudinei del Congo Belge.” 1, 278–283.
- e. WANSON, M., 1954.—“Biotope des simules congolaises vectrices d'*Onchocerca volvulus* et prophylaxie de l'onchocercose humaine.” 1, 564–568.

(355a) Brien redescribes *Cercaria patialensis* from *Melanoides anomala* in a small river near Sakania. From *Lanistes procerus* found at Maka, on the upper Lualaba, he describes a mass of thread-like sporocysts waving their free ends in the mantle cavity. The proliferation of the reproductive cells of larval trematodes is discussed and it is suggested that the process (intermediate between asexual and sexual reproduction) be called parthenogony. It differs from ovum-formation in the absence of maturation divisions and from sporogony in that the proliferating cells are not originally somatic. The proliferating cells are derived instead from a reserve of reproductive cells in the previous asexual stage, a reserve which can be traced to a propagatory cell formed early in the segmentation of the previous larva. Brien questions the justification of considering the propagatory cell a primordial germ cell since, in giving rise to the reproductive reserve, it will in turn form both somatic and reproductive tissue in the next generation. M.MCK.

(355b) Material collected from the alimentary tract of *Dendrohyrax arboreus adolfi-friederici* contained: (i) *Inermicapsifer schoutedeni* n.sp., which is distinguished from eight of the thirteen species of *Inermicapsifer* described from mammals by the position of the unilateral genital pore in the posterior third of each segment, near its posterior angle; the egg capsules are different from, the body is larger and the testes are more numerous than in *I. settii*, *I. prionodes*, *I. lopas* and *I. norhalli*, while the absence of testes anterior to the female genitalia differentiates it from *I. pagenstecheri*; (ii) *Trichuris hyracis* n.sp., of which only the female is known, has been established on account of the presence of a cuticular fold at the posterior end of the body; (iii) *Cobboldina hyracis* n.sp. is differentiated from *C. vivipara* by a lip-like collar surrounding the mouth, a shorter oesophagus the more anterior position of the cervical papillae (situated 39 μ –46 μ from the mouth), the different distribution of the caudal papillae in the

male, and by the shorter left spicule; (iv) *Dartevellenia collaris* n.g., n.sp., from the intestine and caecum, is identical with *Crossophorus collaris* except for the presence of a single intestinal caecum instead of two and of lateral cuticular appendages at the posterior end of the female; the new genus belongs to the Anisakinae; (v) the specific validity of *Hoplodontophorus obtusa* is confirmed. Material from *Procapra johnstoni* included only one cestode, *Inermicapsifer interpositus*.
G.I.P.

(355c) Schwetz calls attention to the extreme confusion in the present planorbid nomenclature arising from the vagueness of descriptions and the difficulties of determining the systematic value of slight variations. He presents a key to the major types of African planorbids which are associated with environment and suggests that the names *Biomphalaria* and *Afroplanorbis* be discarded (retaining *Planorbis*) and that the present specific names be replaced by oecological names, e.g. fluviatile for river forms and albertian for forms from Lake Albert.
M.MCK.

(355d) Sciacchitano reports twelve known species of leeches from the Belgian Congo including *Glossiphonia disjuncta*, a leech parasitic on *Biomphalaria ruppellii*.
M.MCK.

(355e) Wanson reviews the biology and larval habits of *Simulium neavei* and *S. damnosum*, vectors of *Onchocerca volvulus* in the Belgian Congo, and discusses the methods and difficulties of controlling the vectors and of treating the infection in man.
M.MCK.

356—Annales de Parasitologie Humaine et Comparée.

- a. ARVY, L., 1954.—"Contribution à l'étude de *Cercaria sagittarius* (Sinitzin, 1911)." 29 (4), 347-357.
- b. CHABAUD, A. G., 1954.—"Sur le cycle évolutif des spirurides et de nématodes ayant une biologie comparable. Valeur systématique des caractères biologiques (suite et fin)." 29 (4), 358-425.
- c. PICAT, J., BAILENGER, J. & SAUVAGEAU, M. A., 1954.—"Sur un cas de diotrophymose canine dans les Landes." 29 (4), 433-435.
- d. ARVY, L., 1954.—"Distomatose cérébro-rachidienne due à *Diplostomulum phoxini* (Faust), Hughes 1929, chez *Phoxinus laevis* Ag." 29 (5/6), 510-520.
- e. DOLLFUS, R. P., ANANTARAMAN, M. & NAIR, R. V., 1954.—"Métacercarie d'acco-coëllidé chez *Sagitta inflata* Grassi et larve de tétraphyllide fixée à cette métacercarie." 29 (5/6), 521-526.
- f. CHABAUD, A. G. & BIGUET, J., 1954.—"Etude d'un trématode hémiuroïde à métacercarie progénétique. I. Développement chez le mollusque. II. Infestation de copépode. III. Développement chez le copépode." 29 (5/6), 527-545.
- g. BAILENGER, J. & CHANSEAU, J., 1954.—"Etude des vers parasites des amphibiens anoures de la région de Bordeaux. Nouvelles espèces." 29 (5/6), 546-560.

(356a) Arvy illustrates and describes rediae from *Cerithium rupestre* collected at Villefranche-sur-Mer. The rediae had completely replaced the hosts' gonads and contained cystophorous cercariae identified as *Cercaria sagittarius*. A young hemiurid, probably a prematurely developed cercaria, was present in one redia.
M.MCK.

(356b) In this final part of his work on the spirurids and related forms [for abstracts of earlier parts see Helm. Abs., 23, Nos. 7b, 213a], Chabaud considers the larval development and adaptations to their intermediate hosts, and the way in which his observations have confirmed the classification proposed by Chitwood & Wehr: he confirms that the structures surrounding the mouth in the spirurids are pseudolabia, not derived from true lips. In nematode life-cycles, especially in the Spiruridae, intermediate hosts have been acquired relatively recently and because of this the degree of intermediate host specificity gives a clearer picture of the zoological position of the parasite than do its relations with its definitive host. Primitive types develop slowly and the third-stage larvae are very little different from the adults whereas in specialized forms there is a striking metamorphosis: the physalopterids appear to be the only exception to this; they are highly evolved forms but the third-stage larvae resemble the adults very closely; Chabaud believes them to have become separated

from the main spirurid stem at a very early evolutionary stage and proposes their inclusion in a new superfamily, the Physalopteroidea. There are three main types of specificity, phylogenetic and ethological as proposed by Baer, and oecological which Chabaud considers to be a development of ethological and in which the larvae develop in two or more zoologically unrelated intermediaries living in close proximity to the definitive host, but will not develop in other forms which are very closely related to the natural intermediaries. A fourth type of specificity is that which is governed by the metabolic affinities of the parasite and host. The taxonomy of *Spirura talpae* and related species is discussed and an evolutionary series through the Camallaninae, Thelaziinae, Spirurinae and Tetramerinae is traced. He believes that the filariids are a heterogeneous group of convergent forms. One hundred and eleven species are tabulated in a zoological series together with relevant data on their life-cycles and the literature; there is a table of classification and an extensive bibliography. S.W.

(356c) A female *Diocotophyme renale* is recorded in the left kidney of a dog from Landes, France; the dog originated in Sologne. An experimentally infected ferret which died after five months harboured a female worm 38 cm. long, whereas one carrying a male 23 cm. long was apparently unharmed seven months after infection. M.MCK.

(356d) Arvy redescribes and figures *Diplostomulum phoxini* which occurred in the pia mater, cerebral ventricles, cephalo-rachidian fluid, cranial cavity and vertebral canal of apparently healthy *Phoxinus laevis*, bought on the Paris market. A proliferation of tissue rich in alkaline phosphatase had formed around the flukes. Histochemical studies of the parasites revealed them to be abundant in ribonucleins, Hotchkiss-positive polysaccharides and alkaline phosphatases. M.MCK.

(356e) Dollfus *et al.* describe an accacoelid metacercaria, probably belonging to the genus *Accacladium* or *Tetrochetus*, found in abundance in *Sagitta inflata* in plankton off the coast of Madras. On the surface of one of the metacercariae there were two undetermined tetraphyllid scolices; the authors do not consider this to be a case of hyperparasitism but of accidental fixation. M.MCK.

(356f) Chabaud & Biguet describe for the first time the cystophorous cercaria of *Bunocotyle cingulata* from *Hydrobia stagnalis*. It infects the copepod intermediary *Poppella guernei* by piercing the cephalic region of the haemocoel as in *Halipegus*. In the progenetic metacercaria, they recognized Laurer's canal and a seminal vesicle which were not mentioned in Odhner's original description of the adult, and describe, for the first time, the excretory apparatus which is Y-shaped: the arms separate just behind the acetabulum and reach forward to anastomose dorsal to the pharynx, while the hinder, unpaired portion stretches back almost to the tip of the worm and joins a complex lamellar structure of the excretory system which disappears later in development. M.MCK.

(356g) Bailenger & Chanseau obtained 17 known species of helminths from four species of anurans in the region of Bordeaux. They also describe from *Rana esculenta* (i) an unidentified acanthocephalan seemingly lacking genitalia and (ii) *Prosotocus sigalasi* n.sp. which differs from *P. confusus* notably by the position of the genital pore behind the bifurcation of the intestine and just in front of the middle of the body, and from *P. fülleborni* by its papilloid, not spinose, cuticle. M.MCK.

357—Annals of Applied Biology.

- a. WINSLOW, R. D., 1954.—“Provisional lists of host plants of some root eelworms (*Heterodera* spp.).” 41 (4), 591–605.

(357a) Winslow gives the results of extensive host-range tests with the following nine species and varieties of *Heterodera*: *H. schachtii*, *H. cruciferae*, *H. schachtii* var. *trifolii*, *H. schachtii* var. *galeopsidis*, *H. rostochiensis*, *H. carotae*, *H. humuli*, *H. major* and *H. göttingiana*. He regards the results as provisional since absolute purity of the *Heterodera* species in the

infested soils used could not be guaranteed. *H. schachtii* infected nearly all members of the Cruciferae tested as well as plants in the families Amaranthaceae, Caryophyllaceae, Chenopodiaceae, Labiatae, Phytolaccaceae, Polygonaceae, Scrophulariaceae and Tropaeolaceae. *H. cruciferae* infected nearly all Cruciferae tested and a few Labiatae. *H. schachtii* var. *trifolii* and *H. schachtii* var. *galeopsidis* attacked members of the Caryophyllaceae, Labiatae, Leguminosae, Polygonaceae and Scrophulariaceae. *H. rostochiensis* cysts were found only on *Solanum* spp. and *Lycopersicum* spp. *H. carotae* only attacked *Daucus* spp., *H. humuli* only *Humulus*, *Cannabis* and *Urtica*, *H. göttingiana* only *Lathyrus*, *Lens*, *Pisum* and *Vicia*, while *H. major* attacked a variety of grasses.

M.T.F.

358—Annals of Internal Medicine.

- a. ROEHM, D. C., 1954.—“Trichinosis: report of case manifesting myocarditis, encephalitis and radial neuritis; response to ACTH; review of literature regarding the erythrocyte sedimentation rate.” 40 (5), 1026–1040.
- b. LYONS, R. T. & BENSON, J., 1954.—“*Schistosoma mansoni*: a study of 26 Puerto Ricans in a non-endemic area.” 40 (6), 1194–1206.

(358a) Roehm describes a case of acute trichinellosis which showed myocarditis, encephalitis and radial neuritis as well as myositis. ACTH was given by intravenous infusion any by intramuscular injections and terminated three crises but did not prevent permanent injury to the brain and, in all probability, to the heart.

S.W.

(358b) Lyons & Benson studied 26 cases of chronic schistosomiasis mansoni. They found that examination of serial sections of material obtained by rectal biopsy gave the greatest accuracy in diagnosis. Treatment with tartar emetic up to a total of 1.6 gm. during 30 days was effective but unpleasant side effects were very frequent. From a comparison of the results of liver biopsies and liver function tests they suggest that there is a correlation between the results of the cephalin flocculation test and the existence of schistosomal involvement of the liver. An increase in the absolute number of eosinophils, one or two weeks after the beginning of treatment, was observed in the five cases which showed the greatest symptomatic and clinical improvement.

S.W.

359—Annals and Magazine of Natural History.

- a. INGLIS, W. G., 1954.—“On some nematodes from Indian vertebrates. I. Birds.” Ser. XII, 7 (83), 820–826.

(359a) Of the thirteen nematode species identified in Indian birds only one is new, viz., *Contracaecum accipitris* n.sp. found in the stomach of a black vulture, *Sarcogyps calvus*, at Ramgarh, Central Provinces. There are seven pairs of post-anal papillae and in one of the two males, 25 and in the other 28 pairs of pre-anals. There are no lateral papillae on the female tail which is bluntly conical. The lips are small with a pair of processes directed forward and laterally. The sub-globular eggs measure 0.075–0.084 mm. × 0.055–0.066 mm. The oesophagus is narrow and measures 7.3 mm. in length and the voluminous caecum is about 5.6 mm. long. New host records for known species are *Contracaecum miloi* in *Butastur teesa*, *Belanisakis ibidis* in *Pseudibis papillosa*, and *Habronema magnilabiatum* in *Pseudogyps bengalensis*.

R.T.L.

360—Annals of Tropical Medicine and Parasitology.

- a. DUKE, B. O. L., 1954.—“The transmission of loiasis in the forest-fringe area of the British Cameroons.” 48 (4), 349–355.
- b. SILVERMAN, P. H., 1954.—“Studies on the biology of some tapeworms of the genus *Taenia*. II. The morphology and development of the taeniid hexacanth embryo and its enclosing membranes, with some notes on the state of development and propagation of gravid segments.” 48 (4), 356–366.
- c. WEBBER, W. A. F., 1954.—“The reproductive system of *Litomosoides carinii*, a filarial parasite of the cotton rat. I. Development of gonads and initial insemination.” 48 (4), 367–374.

- d. WEBBER, W. A. F., 1954.—“The reproductive system of *Litomosoides carinii*, a filarial parasite of the cotton rat. II. The frequency of insemination.” 48 (4), 375-381.
- e. HAWKING, F., 1954.—“The reproductive system of *Litomosoides carinii*, a filarial parasite of the cotton rat. III. The number of microfilariae produced.” 48 (4), 382-385.
- f. DUKE, B. O. L., 1954.—“The uptake of the microfilariae of *Acanthocheilonema streptocerca* by *Culicoides grahami*, and their subsequent development.” 48 (4), 416-420.

(360a) In the forest fringe at Menja, British Cameroons, the development of *Loa loa* in *Chrysops silacea* and *C. zahrai* takes place at 4,000 ft. to 5,000 ft. above sea level but requires three to four weeks instead of ten to twelve days owing to the low temperature. Both species of *Chrysops* are most abundant there at the time of the first rains in late March and persist throughout the rainy season. Whereas *C. silacea* bites throughout the day, *C. zahrai* bites chiefly between 4 p.m. and dusk and in the early morning. Although infective forms do develop in *C. zahrai* they are smaller than those in *C. silacea* and for various reasons *C. zahrai* is believed to be a less efficient vector. R.T.L.

(360b) Only 50% of freshly expelled gravid segments of *Taenia pisiformis* and *T. saginata* contain eggs with well formed embryophores. In about 40% the embryophores are incompletely formed and about 10% of the eggs showed no sign of embryophore formation. When mature segments were treated with hatching solution it was found that the state of development of the eggs did not necessarily coincide with the apparent age of the segments. The number of segments passed daily may vary from none to about 12. On one day gravid segments with infective eggs may be passed and on another day they may contain only immature or infertile eggs. When stored in normal saline at room temperature some immature eggs mature in about two weeks while others do not mature even in two months. The significance of these observations on the spread of cysticerciasis is discussed. Silverman also gives a detailed account, illustrated by eleven photomicrographs, of the morphological and histological changes which take place during the development of the ovum to the hexacanth embryo. R.T.L.

(360c) Webber gives an illustrated account of the development of the reproductive system in third and fourth-stage larvae and in young adults of *Litomosoides carinii*. In the male worms spermatozoa had developed by the 25th day after infection. All the females were inseminated by the 33rd day. In the early larval stages the vulva is in the oesophageal region but becomes post-oesophageal in the late fourth-stage larva and adult. The genital primordium in the female third-stage larva consists of a group of cells attached to the body-wall at the vulva. These grow backwards to form the vagina, then uteri and lastly ovaries. The genital primordium in the male consists during the third stage of a group of cells lying ventrally between the cloaca and the body-wall growing forward as the vas deferens and later the testes. The spicules in the larvae are membranous with thickened areas. They lengthen and reach their final shape when the worms are mature. R.T.L.

(360d) When adult *Litomosoides carinii* were transplanted into normal cotton-rats the duration of microfilaraemia and the maximum number of microfilariae in the blood were less than in undisturbed infections. The course of the microfilarial infection following transplantation of inseminated female worms and of worms of both sexes was the same, indicating that male worms were not essential for the maintenance of microfilarial production by repeated insemination of the females. R.T.L.

(360e) It is estimated that adult female *Litomosoides carinii* which were maintained alive for two days *in vitro* in Carrel flasks, containing 2 c.c. of 25% horse serum and 75% Ringer's solution containing 0.2% of glucose and incubated at 35°C., produced from 4,000 to 43,000 microfilariae in about 20 hours. *In vivo* the number produced was 12,000 to 22,000. As an adult female contains from 60,000 to 100,000 ova and microfilariae in the uteri, it is estimated that development from the unfertilized ovum to the extruded microfilaria takes from five to six days. R.T.L.

(360f) Duke has confirmed Chardome & Peel's experiments on the development of *Dipetalonema streptocerca* in wild *Culicoides grahami* [for abstract see Helm. Abs., 18, No. 147f], and has shown that the flies will also take up at the same time fully representative numbers of *Acanthocheilonema perstans* microfilariae when the host carries both parasites. A table shows the number of microfilariae of *D. streptocerca*, *A. perstans* and *Loa loa* taken up by *C. grahami* from different parts of the body of a volunteer with multiple infection. The negative results obtained by some previous investigators were due to feeding the flies on *streptocerca*-free areas of the skin.

R.T.L.

361—Annual Review of Microbiology.

- a. OLIVER-GONZÁLEZ, J., 1954.—“Immunological properties of polysaccharide from animal parasites.” 8, 353-362.

(361a) Oliver-González summarizes the published work on the immunology of polysaccharides obtained from adult *Ascaris lumbricoides*, *Schistosoma mansoni*, *Fasciola hepatica*, *Necator americanus*, *Macracanthorhynchus hirudinaceus*, *Toxocara canis* and *Moniezia expansa*, and from larval *Trichinella spiralis*, *Echinococcus granulosus* and *Taenia taeniaeformis*. He concludes that they are of doubtful value in diagnosis as their immunological reactions are not species specific. There is some evidence that the polysaccharides are harmful to the host and that they may be associated with hypersensitivity.

S.W.

362—Antibiotics and Chemotherapy.

- a. KENDIG, Jr., E. L. & ARNOLD, G. G., 1954.—“Oxytetracycline in the treatment of pin-worm infestation.” 4 (10), 1111-1112.

(362a) Terramycin (oxytetracycline) has been found to be effective in enterobiasis but as the cost of treatment is relatively great, the value of lower dosages was investigated. Cures were obtained in 39 out of 54 children treated for one week by a daily dose of 5 mg. per lb. body-weight, but only four out of 16 treated daily for a three-day period with a dosage of 10 mg. per lb. body-weight were cured.

R.T.L.

363—Archiv für Toxikologie.

- a. MALORNY, G., 1954.—“Toxische Anämie und beginnende Agranulocytose durch phenothiazinhaltige Wurm-Schokolade.” 15 (1), 32-34.

(363a) Ten days after a five-year-old girl had been given a total dose of 2.4 gm. phenothiazine (in the form of “Helmetina worm chocolate”) for the treatment of ascariasis she developed a severe anaemia with leucopenia. Malorny describes the case and considers that the leucopenia was due to disturbance of granulopoiesis in the bone marrow.

A.E.F.

364—Archives de l'Institut Pasteur de la Guyane Française.

- a. FLOCH, H., 1954.—“Sur la pathologie vétérinaire en Guyane Française. Les affections des bovidés (II). Piroplasmoses, brucelloses, charbon, salmonelloses, infections à bactéries diverses, viroses, filariose, strongylose.” XV Année, No. 331, 7 pp.
- b. FLOCH, H., 1954.—“L'intradermo-réaction chez les filariens. Etude comparée de deux antigènes (*D. medinensis* et *D. immitis*).” XV Année, No. 332, 6 pp.

(364a) Floch recalls that of the 28 microfilariae reported by him from French Guiana in 1942, two occurred (one sheathless and one with a sheath) in cattle and one (sheathless) in the buffalo. In cattle imported from Brazil he has only found the sheathed type of microfilaria. He records that the lungs infected with *Dictyocaulus viviparus* are frequently seized at the abattoir.

R.T.L.

(364b) Floch has been unable to confirm the reliability of *Dirofilaria immitis* antigen for the diagnosis of filarial infections which was reported by Huard & Tran Anh [for abstract see Helm. Abs., 19, No. 665a]. He used antigens prepared from *Dracunculus medinensis* and from *Dirofilaria immitis* and tested 58 children of whom 17 showed microfilariae of *Wuchereria bancrofti*. With the *D. immitis* antigen 13 of the infected children and 19 of the uninfected gave positive reactions (two of the latter had shown microfilariae one year previously). With the *Dracunculus medinensis* antigen 15 negative and only two positive reactions were obtained in the cases with microfilariae and six positive reactions in those without. S.W.

365—Archives de l'Institut Pasteur du Maroc.

- a. DOLLFUS, R. P., 1954.—"Miscellanea helminthologica maroccana XII. Deux *Molinostrongylus* de chiroptères. Hôtes et distribution géographique des nématodes *Strongylata* de chiroptères." 4 (9), 562–582.
- b. DOLLFUS, R. P., 1954.—"Miscellanea helminthologica maroccana XIII. Deux *Dicrocoeliinae* d'oiseaux passériformes du Maroc. Discussion de quelques genres de *Dicrocoeliinae* d'homéothermes." 4 (9), 583–602.
- c. DOLLFUS, R. P., 1954.—"Miscellanea helminthologica maroccana XIV. Un *Brachylaema* (trématodes, Distomes) de pigeon domestique." 4 (9), 603–611.
- d. DOLLFUS, R. P., 1954.—"Miscellanea helminthologica maroccana XV. Présence au Maroc de *Leptophallus nigrovenosus* (Bellingham) (trématodes, Distomes)." 4 (9), 612–624.
- e. DOLLFUS, R. P., 1954.—"Miscellanea helminthologica maroccana XVI. Sur un distome de microchiroptère." 4 (9), 625–635.
- f. DOLLFUS, R. P., 1954.—"Miscellanea helminthologica maroccana XVII. Distribution géographique des distomes du genre *Mesocoelium* avec description d'espèces récoltées au Maroc." 4 (9), 636–656.
- g. DOLLFUS, R. P., 1954.—"Miscellanea helminthologica maroccana XVIII. Quelques cestodes du groupe *Oochoristica* auctorum récoltés au Maroc, avec une liste des cestodes des hérissons (*Erinaceidae*) et une liste des sauriens et ophiidiens (exclus. Amérique et Australie) où ont été trouvés des *Oochoristica*." 4 (9), 657–711.

(365a) *Molinostrongylus panousei* n. sp. from *Miniopterus schreibersi schreibersi*, captured north of Rabat, Morocco, is distinguished by the presence of 14 fine, longitudinal, serrated, cuticular striations, by the continuation of the broad lateral alae to the caudal bursa and by the reduction of the dorsal portion of the bursa to a minute bilobed projection. Dollfus redescribes *Molinostrongylus alatus* from *Myotis m. myotis* and agrees with López-Neyra that *Molinostrongylus heydoni* (Baylis, 1930) is synonymous with *M. ornatus* (Mönnig, 1927). The *Strongylata* of bats are tabulated alphabetically and according to their hosts. M.MCK.

(365b) The *Dicrocoeliinae*, especially *Lyperosomum*, *Platynosomum*, *Zonorchis* and the subgenera *Conspicuum* and *Skrjabinus* of *Eurytrema* are discussed. Comparative diagrams are given of 15 genera. *Dicrocoelioides petiolata* from *Passer domesticus* and *Brachylecithum alfortense* from *Pica pica mauritanica* are redescribed. Dollfus suggests that *B. alfortense* is synonymous with *B. lobatum*. As Railliet's original specimen of *Dicrocoelium lobatum* is in bad condition no conclusion could be reached on its synonymy. M.MCK.

(365c) From a study of specimens from *Columba livia* Dollfus considers that *Brachylaemus nicolli* (Witenberg, 1925), if not a separate species, is a distinct variety of *B. fuscata* (Rudolphi, 1819) in which the suckers are equal in size or the ventral sucker is slightly larger. He therefore identifies his material as *B. fuscata* var. *nicolli*. In this view he disagrees with Joyeux, Baer & Timon-David who, in 1932 and 1934, regarded the two as synonymous. M.MCK.

(365d) *Leptophallus nigrovenosus* from *Natrix viperina* is redescribed from specimens obtained in Morocco. In this material the cirrus pouch is much larger than in the specimens from *Natrix natrix* var. *persa* described by Odhner and may prove to be a subspecies. The genus *Leptophallus* belongs to Lepodermatidae, not to Brachycoelidae in which it was placed in 1942 by Hughes, Higginbotham & Clary in their catalogue "The Trematodes of Reptiles". R.T.L.

(365e) Dollfus redescribes and figures *Prosthodendrium pyramidum* (Looss, 1896) from *Miniopterus schreibersi* captured north of Rabat. In spite of the spinulation of the genital pore observed in many specimens this species apparently belongs to the subgenus *Prosthodendrium* in which the ovary is not lobed. A key is given to two sections and nine subsections of this subgenus into which Dollfus places the individual species. M.MCK.

(365f) Dollfus describes three new species from Morocco. *Mesocoelium georgesblanci* n.sp. from *Coelopeltis monspessulana* is closely allied to *M. waltoni* and *M. meggitti* but it is separated on geographical grounds: it is distinguished from other African species by its vitellaria which only reach the bifurcation of the intestine, and by the position of the genital pore which does not lie behind the gut bifurcation. *M. magrebense* n.sp. from *Zamenis hippocrepis* is distinguished from *M. monodi*, *M. americanum* and *M. sociale* because the genital pore is behind the gut bifurcation and the vitellaria reach only to the middle of the pharynx: as the caeca are within the anterior half of the body this differentiates it from *M. berti*. *M. brachyenteron* n.sp. from *Vipera lebetina* is almost identical with *M. geoemydae* and *M. oligoon* but is considered to be a separate species on geographical grounds. Thirty-two recorded species of *Mesocoelium* are tabulated under their geographical distributions, which are considered more important in the naming of species than the systematic position of the host. M.MCK.

(365g) Dollfus lists the cestodes of hedgehogs and describes *Mathevotaenia aethechini* n.sp. found in *Aethechinus algirus* at Casablanca. It has about 40-80 testes, some of which lie behind the vitellaria in two to three rows. The ovary is slightly anterior to the middle of the proglottis and is an inverted U-shape with converging arms. This combination of characters distinguishes it from *M. erinacei*, *M. herpestis*, *M. figurata*, *M. parva*, *M. skrjabini* and *M. voluta*. *Oochoristica gallica* n.sp. from *Psammodromus hispanicus* in the eastern Pyrenees has a cirrus pouch reaching into the proglottis in front of the portal lobes of the ovary. The genital atrium is strongly muscular; it is thus distinguished from *O. tuberculata* and *O. rostellata*. *O. gallica pleiomorcheis* n. var. found in *Lacerta lepida* has 75-83 testes instead of 39-48. *O. salensis* n.sp., from *Coelopeltis monspessulana* caught near Rabat, is differentiated from *O. tuberculata* and *O. africana* by its indistinct segmentation and 40-60 testes. *O. chabaudi* n.sp. is a single specimen from *Chalcides mionecton* at Casablanca. It is very similar to *O. tuberculata* sensu J. G. Baer, 1927 but shows considerably different measurements for eggs, onchospheres and cirrus pouch. The lizard and snake hosts of *Oochoristica* (as emended by Dollfus) in the palearctic, ethiopian and oriental regions are listed. *O. agamae* from *Psammodromus algirus* and *O. africana* from *Coelopeltis monspessulana insignitus* are redescribed; Dollfus disagrees with Spasski, 1951 that these two species of *Oochoristica* are synonymous or that they are synonymous with *O. africana ookiepensis* Malan, 1939 and *O. truncata* (Krabbe, 1879). M.MCK.

366—Archivio Italiano di Scienze Mediche Tropicali e di Parassitologia.

- a. URSO, B. & MASTRANDREA, G., 1954.—"Anchilostomiasi ed ulcera duodenale." 35 (3), 120-123.
- b. LIPPI, M., 1954.—"Contributo alla conoscenza dell'appendicite da bilharzia." 35 (9), 431-438. [English, French & German summaries p. 437.]

(366a) X-ray examinations of some of the cases of ancylostomiasis among gardening populations in the outskirts of Rome revealed typical duodenal ulcers which may have developed from the lesions caused by the attachment of the worms. But as some of the patients suffered also from gastritis and gastroduodenitis, this may not have been the cause. M.MCK.

(366b) The literature on appendicitis associated with *Schistosoma* infection is briefly summarized and a case is now reported from the Yemen in which the faeces were negative but there were calcified eggs of *Schistosoma haematobium* in fibrous foci. R.T.L.

367—Arkiv för Zoologi.

- a. MONNÉ, L. & BORG, K., 1954.—“On the Gram staining of the egg envelopes of parasitic worms.” Ser.2, 6 (6), 555-557.
- b. MONNÉ, L. & HÖNIG, G., 1954.—“On the properties of the egg envelopes of the parasitic nematodes *Trichuris* and *Capillaria*.” Ser.2, 6 (6), 559-562.

(367a) The egg-shells of *Dicrocoelium dendriticum*, *Dictyocaulus viviparus*, *Syngamus trachea*, *Metastrongylus elongatus*, *Passalurus ambiguus* and of several species of *Trichuris* were found to consist of quinone-tanned proteins. These shells are Gram-positive and able to reduce the ammoniacal silver nitrate solution on application of the Fontana method. The refringent protein granules incorporated in the nematode egg-shell were stained violet by the Gram or Gram-Weigert method and black by the Fontana method. The shell of *Ascaris lumbricoides* var. *suum* eggs did not exhibit the above properties and, although generally considered to consist of chitin, remained colourless when tested for polysaccharides with the periodic acid Schiff method. This shell is evidently not quinone-tanned. M.MCK.

(367b) Monné & Hönig studied the egg envelopes of *Trichuris leporis*, *T. ovis*, *T. myocastoris* and *Capillaria longicollis*. The shell, composed of a quinone-tanned protein whose molecules are cross-linked by cystine bridges, consists of a thick outer lamellar layer which when fully developed is brown and exhibits a honeycombed surface with a peculiar birefringence, and a thin inner layer which is transparent, submicroscopically lamellar, and negatively birefringent with respect to the axes of the egg. The birefringence of the inner layer is shared to some extent by the outer layer and is not reversed by treatment with pyridine, showing that the shell does not contain any considerable amount of chitin. The lipid coat, not to be confused with the plasma membrane or cortex, lies next to the egg and is revealed by dissolving the shell and the plugs in sodium hypochlorite. Its lipid nature is shown by its positive birefringence with respect to the radius of the egg and its disintegration under the action of heat and organic solvents, but not with protein solvents. Polysaccharides are evidently present in the plugs which, unlike the rest of the shell, stain deeply with the periodic acid Schiff test. Concentrated sulphuric or hydrochloric acid dissolve the plugs and often cause the egg, enclosed in its lipid coat, to be ejected through one of the openings; it is suggested that hatching larvae may be similarly forced out upon depolymerization of the polysaccharide of the plugs by means of an enzyme. During development the interior layer of the shell is formed first, the outer layer next and the lipid coat last, the plugs appearing early on. M.MCK.

368—Bimonthly Bulletin. North Dakota Agricultural Experiment Station.

- a. CALLENBACH, J. A., 1954.—“The potato rot nematode.” 16 (6), 242-244.
- b. SHUMARD, R. F. & EVELETH, D. F., 1954.—“Liver flukes of cattle and sheep.” 17 (2), 59-65.

(368b) The life-cycle, pathology and incidence of *Fascioloides magna*, *Fasciola hepatica* and *Dicrocoelium dendriticum* in the U.S.A. are outlined. The finding of *Fascioloides magna* and the eggs of *D. dendriticum* in North Dakota is reported for the first time. It is recalled, that in 1954 the U.S. Department of Agriculture estimated that, at market prices then current the annual loss during the years 1942-51 inclusive averaged annually \$3,500,000 for cattle and \$4,650,000 for sheep condemned for fluky livers. R.T.L.

369—Biologie Médicale.

- a. THÉODORIDÈS, J., 1954.—“Parasitisme et écologie.” 43 (4), 440-463.

370—Boletín de la Asociación Médica de Puerto Rico.

- a. KOPPISCH, E., MARCIAL ROJAS, R., CORDERO, R. & GUZMÁN LÓPEZ, L., 1954.—“Primer caso autoctono de cisticercosis en Puerto Rico. Informe de un caso con hallazgos necropsícos.” 46 (5), 185-197. [English summary pp. 195, 197.]
- b. MALDONADO, J. & OLIVER-GONZÁLEZ, J., 1954.—“Present status of intestinal parasitism in certain areas of Puerto Rico.” 46 (5), 225.
- c. NUÑEZ, N. & BERIO, A., 1954.—“Complicaciones quirúrgicas de la ascariasis.” 46 (9), 432-443.

371—Boletín Chileno de Parasitología.

- a. NEGhme, A., SILVA, R. & SOTOMAYOR, R., 1954.—“Enteroparasitosis entre escolares de la provincia de Santiago.” 9 (3), 70-73. [English summary p. 70.]
- b. PIZZI, T. & SCHENONE, H., 1954.—“Hallazgo de huevos de *Trichuris trichiura* en contenido intestinal de un cuerpo arqueológico incaico.” 9 (3), 73-75. [English summary p. 73.]
- c. LUENGO, M. & RODRÍGUEZ, H., 1954.—“Presencia y cantidad de infección triquinósica en los músculos pilar carnosos del diafragma, maseteros, faringeos e intercostales del cerdo.” 9 (3), 82-84. [English summary p. 82.]
- d. NEGhme, A., SILVA, R. & RODRÍGUEZ Z., L., 1954.—“Hidatidosis humana en Chile en 1953.” 9 (4), 110-112. [English summary p. 110.]
- e. TAGLE, I., 1954.—“Parasitismo del aparato digestivo del ovino y su tratamiento.” 9 (4), 113-115. [English summary p. 113.]
- f. LEÓN, R., 1954.—“Algunas consideraciones sobre la triquinosis en el periodo agudo.” 9 (4), 116-117. [English summary p. 116.]
- g. FANTA, E., 1954.—“Ascariasis masiva. Relato de un caso.” 9 (4), 117-119. [English summary p. 117.]

(371a) Faecal examinations of 3,902 schoolchildren aged 7 to 14 years, in the surrounding districts of Santiago, Chile, gave the following incidence: *Ascaris lumbricoides* 27.87%, *Trichuris trichiura* 40.15%, *Hymenolepis nana* 15.76% and *Enterobius vermicularis* (determined in 2,861 of the children by the Graham method) 36.48%. M.MCK.

(371b) The frozen body of an Inca child was found in a tomb near Santiago at an altitude of 5,400 m. Faeces taken from the rectum contained numerous eggs of *Trichuris trichiura*. As the burial probably took place approximately 450 years ago, i.e. before the Spanish conquest, Pizzi & Schenone suggest that the original home of this species may have been the New World. M.MCK.

(371c) From a comparative study by phototrichinoscope of the presence of encapsulated larvae in different muscles of 100 trichinous pigs at the Santiago slaughterhouse, Luengo & Rodríguez conclude that: (i) the pillars of the diaphragm are the muscles of choice for detecting *Trichinella spiralis*; (ii) at least eight slides must be examined of this muscle per pig to ensure detection; (iii) the minimum personnel required to examine 1,000 pigs per day is eight trichinoscopists, who must be qualified veterinary surgeons, four sample collectors and ten assistants to prepare slides; (iv) to maintain reasonable accuracy each trichinoscopist should not examine more than 1,000 slides per day. M.MCK.

(371d) Neghme *et al.* tabulate according to age group and geographical distribution the 493 hydatid cases accepted for treatment in the National Public Health Service hospitals of Chile in 1953. They record other relevant details and compare the figures with equivalent statistics for the years 1945-52. M.MCK.

(371e) Tagle describes the principal helminths of sheep in Chile and outlines methods of parasite control. He points out the losses experienced by farmers as a consequence of the poorer quality of meat and wool produced by sheep with intestinal parasites. He advises the proper treatment for each parasite but warns against the commercial propaganda of drug mixtures of doubtful or no value, sometimes recommended as panacea for all species of parasites. M.MCK.

(371f) The eosinophilia in 75 cases of trichinosis in Chile ranged from 5% to 75%; 74% had leucocytosis. The Bachmann test for trichinosis was positive in 31 out of 32 patients and as a routine method was preferred to biopsy. M.MCK.

(371g) An eight-year-old girl continued to pass *Ascaris lumbricoides* eggs after eliminating 163 specimens as a result of treatment with hexylresorcinol chrystoids, Santonin and hetrazan syrup. M.MCK.

372—Bollettino Chimico-Farmaceutico.

- a. CARGNELLI, R., 1954.—“Ossiuriasi e suoi vecchi e nuovi trattamenti.” 93 (4), 136-143.

(372a) Cargnelli briefly surveys the many old and new remedies, of both vegetable and chemical origin, which have been used in the treatment of enterobiasis. M.MCK.

373—Bombay Veterinary College Magazine.

- a. KULKARNI, H. V., RAO, S. R. & CHAUDHARI, P. G., 1954.—“Unusual outbreaks of schistosomiasis in bovines due to *Schistosoma spindalis* associated with heavy mortality in Bombay State.” Year 1953-54, 4, 3-15.

(373a) *Schistosoma spindale* infection is usually only slightly pathogenic but two recent outbreaks in the villages of Malpur and Kasara in the West Khandesh district of the State of Bombay were so severe that 157 animals (121 bullocks, 34 cows and two buffaloes) died out of a local cattle population of 1,248. Sheep and goats were also affected. The outbreak was not only the first to be recorded from the Bombay State but was unique in that the infection was generalized and invaded almost all the organs including the heart. The animals had recently been vaccinated against rinderpest and this may have increased their susceptibility. The clinical symptoms and post-mortem findings are described. The outbreaks were controlled by injections of tartar emetic and antimosan, both of which gave a high percentage of recovery. *Indoplanorbis exustus* was the only species among the local molluscs in which furcocercous cercariae were found. The common drinking places were treated monthly with copper sulphate. In some cases the symptoms were akin to those of rinderpest, coccidiosis or John's disease but eggs were found in the faeces and sometimes in the urine also. It is believed that the toxins discharged by the parasites were responsible for the lesions and for the death of the animals.

R.T.L.

374—British Journal of Pharmacology and Chemotherapy.

- a. MANSOUR, T. E. & BUEDING, E., 1954.—“The actions of antimonials on glycolytic enzymes of *Schistosoma mansoni*.” 9 (4), 459-462.

(374a) Mansour & Bueding investigated the action of trivalent antimonials and oxophenarsine on glycolytic enzymes of *Schistosoma mansoni*. It was found that the parasite's hexokinase which was very sensitive to oxophenarsine was little affected by stibophen or potassium antimony tartrate. Similarly the activity of the parasite's phosphohexose isomerase was not affected by these compounds. Lactic acid production by the worms from hexose-diphosphate was not affected even by high concentrations of potassium antimony tartrate, but with fructose-6-phosphate as substrate the activity of the extract was markedly decreased at molar concentrations above 5×10^{-4} . Similar results were obtained with stibophen. These data indicated that the inhibition of glycolysis by antimonials is brought about by blocking the formation of hexose-diphosphate from fructose-6-phosphate which is catalysed by the action of phosphofructokinase. The phosphofructokinase of the worm tissue was found to be markedly inhibited by low concentrations of both potassium antimony tartrate and stibophen. It was also found that the phosphofructokinase activity of rat brain was much less sensitive to trivalent antimonials and to oxophenarsine than was that of worm tissue.

D.L.H.R.

375—British Journal of Surgery.

- a. WINDSOR, H. M., 1954.—“Primary cardiac hydatid disease.” 41 (169), 541-546.

376—Bulletin of the Calcutta School of Tropical Medicine.

- a. BHADURI, N. V. & CHOWDHURY, A. B., 1954.—“Sodium fluoride in the treatment of filariasis.” 1 (4), 14-15.
 b. BHADURI, N. V. & CHOWDHURY, A. B., 1954.—“Filariasis due to *Wuchereria malayi* in West Bengal.” 2 (2), 52.
 c. CHOWDHURY, A. B., 1954.—“Filariasis in children.” 2 (2), 74.

(376a) Bhaduri & Chowdhury have tested the efficacy of sodium fluoride in the treatment of filariasis. Thirty-five cases were treated with either eight or four injections of 1 c.c. of a 1% aqueous solution. There was no diminution of the number of microfilariae in the blood and no notable improvement in the clinical symptoms, which in some cases became worse.

S.W.

(376b) *Microfilaria malayi* has been found 15 times alone or in association with *M. bancrofti* in West Bengal. On some occasions or for several days only one or other of these two kinds of microfilariae were seen in the blood. The leading clinical features are tabulated. There was a genital involvement in nine of the cases. In four of these *M. malayi* alone was present and in five there was a mixed infection. Of the cases with *M. malayi* alone two showed involvement of the lower and one of the upper limbs. Two cases were asymptomatic. This is the first record of the occurrence of *M. malayi* in West Bengal. R.T.L.

(376c) The filarial manifestations shown by eight Indian children, two to twelve years old were: elephantiasis of the leg in four, and of the penis and scrotum in one, epididymo-orchitis in two, and lymphangio varix of the inguino-femoral area on either side with other concomitant features in one. The eosinophil count varied from 4% to 30%. An elephantoid condition had started in cases aged two to five years. R.T.L.

377—Bulletin of the Johns Hopkins Hospital.

- a. OTTO, G. F., BERTHRONG, M., APPLEBY, R. E., RAWLINS, J. C. & WILBUR, O., 1954.—“Eosinophilia and hepatomegaly due to *Capillaria hepatica* infection.” 94 (6), 319-336.

(377a) Massive infection with *Capillaria hepatica* was associated with sickle cell anaemia and hepatomegaly in a seven-year-old child. The diagnosis was made by biopsy and confirmed at autopsy. Numerous ova and adult worms undergoing necrosis were found in necrotic foci in the liver. This is the fourth known case of human infection with *C. hepatica* and the first to be recognized during life. R.T.L.

378—Bulletin Médical. Paris.

- a. SCHRUB, J. C., 1954.—“Consultation médicale: traitement de l'ascaridiose et de l'oxyurose.” 68 (9), 237-238.
b. RAOULT, A., 1954.—“Chimiothérapie des bilharzioses en Afrique Noire.” 68 (10), 259-263.

(378b) Since the disappearance of many of the major diseases, schistosomiasis together with malnutrition and malaria pose a particularly difficult problem to the sanitary authorities in equatorial Africa. Raoult reviews the methods of administration and the precautions to be taken in the treatment of schistosomiasis by the following drugs, viz., organic and inorganic antimony salts, sodium salts, derivatives of thioxanthone, piperazine and its derivatives and “1-ascorbo-hypophosphato-antimonio de calcium et de potassium”, a recent product not so far produced commercially. M.MCK.

379—Bulletins et Mémoires de la Société Médicale des Hôpitaux de Paris.

- a. CAMELIN, A., BÉNAZET, F., MIÉRAL, R. & VIGNE, J., 1954.—“Echinococcose alvéolaire du foie avec mise en évidence du parasite à la biopsie per-opératoire.” 4e Série, 70 (21/23), 747-751. [Discussion p. 751.]

380—Bulletin of the Research Council of Israel.

- a. ELIAKIM, M. & DAVIES, A. M., 1954.—“The complement fixation test in bilharziasis.” [Abstract of paper presented at 10th Meeting of the Microbiological Society, Jerusalem, March 17-19, 1954.] 4 (2), 212.

(380a) [The information in this abstract is substantially the same as that which appeared in *Parasitology*, 44, 407-413. For abstract see Helm Abs., 23, No. 291h.]

381—Bulletin des Séances. Institut Royal Colonial Belge.

- a. SCHWETZ, J., 1954.—“Recherches malaco-schistosomiques dans l'agglomération d'Albertville (Lac Tanganika, Congo belge).” 25 (2), 843-869.

(381a) Half of the native population at Albertville, Belgian Congo, are infected with *Schistosoma mansoni* from *Planorbis tanganyikanus* in the lake of Tanganyika and from *P. pfeifferi*

in the streams. Although *Physopsis* is present, vesical schistosomiasis does not occur there but is found in other parts of Katanga Province. Schwetz tabulates eight cases of severe intestinal schistosomiasis, treated with 0.2 gm. of miracid (nilodin, thixantone) twice daily for five days, and lists the percentages of schistosome infections in the populations of neighbouring hamlets and in local planorbids. M.MCK.

382—Bulletin de la Société Neuchâteloise des Sciences Naturelles.

- a. EUZET, L., 1954.—“Quelques espèces du genre *Calliobothrium* van Beneden 1850 (Cestoda: Tetraphyllidae).” 77, 67–79.
- b. MEYER, P. O. & DUBOIS, G., 1954.—“Dermatite humaine causée par des furcocercaires ocellées dans les bains publics de Zurich.” 77, 81–110. [English & German summaries p. 106.]

(382a) Euzet examined abundant material of various species of *Calliobothrium* from *Mustelus himmulus* and *M. laevis* at Sète and concluded that two species had been confused under the name *C. eschrichtii* van Beneden, 1850. Investigation of Linton's material from *M. canis* at Woods Hole showed that it was not, in fact, identical with *C. eschrichtii* but that it did correspond with specimens from *M. laevis* at Sète; Euzet proposes the name *C. lintoni* n.sp. for this species. *C. verticillatum*, *C. eschrichtii* and *C. leuckartii* are redescribed and *C. lintoni* is described and figured. The new species can be distinguished from *C. eschrichtii* by the shape and size of the hooks (which are larger in *C. lintoni*), by the number of testes (12–15 in *C. eschrichtii*, 30–36 in *C. lintoni*) and by the shape and size of the envelope surrounding the ova which is fusiform in *C. eschrichtii* and spherical in *C. lintoni*. S.W.

(382b) An outbreak of schistosome dermatitis amongst bathers at the public baths in Zurich was caused by a cercaria of the *ocellata* group emitted by *Limnaea ovata*. Meyer & Dubois present a comprehensive review of the whole *ocellata* group and a classification of furcocercous cercariae with five pairs of glands and eye spots, which is based on the type of excretory system and the form, number and arrangement of the glands. *Cercaria turicensis* n.sp. for *C. ocellata* Ssinitzin, 1910 nec La Valette, 1855 is described and illustrated. *Cercaria subocellata* nom.nov. is proposed for *C. ocellata* Porter, 1938 on the grounds that this is a homonym of *C. ocellata* La Valette, 1855. A new technique for fixing cercariae by heat is described and a statistical analysis is made of the measurements of the cercariae, following Schilder's method. S.W.

383—Bulletin de la Société de Pathologie Exotique.

- a. DESCHIENS, R. & JADIN, J., 1954.—“Viabilité des mollusques vecteurs des bilharzioses dans les eaux profondes.” 47 (5), 668–671.
- b. DESCHIENS, R. & FLOCH, H., 1954.—“Incidence de l'A.C.T.H. sur les hyperéosinophilies parasitaires de l'enfant.” 47 (5), 680–695. [Discussion pp. 695–696.]
- c. BAUGÉ, R., 1954.—“Fréquence du parasitisme intestinal humain en Février-Mai 1953, dans la région de Hongay (Nord-Vietnam).” 47 (5), 720–728. [English summary pp. 727–728. Discussion pp. 728–729.]
- d. DANA, R., DUPOUX, R., BORSONI, G. & THONIER, J., 1954.—“L'anquilostomiase en Tunisie. Son traitement par le tétrachloréthylène. Action du T.C.E. sur quelques autres parasites intestinaux.” 47 (5), 730–748.

(383a) Two wire baskets each containing specimens of *Planorbis adowensis* and *P. glabratus* and provided with lettuce as food were lowered in the river Seine at Suresnes, below Paris, one to the depth of 10 m. from the surface and 50 cm. above the muddy bottom and the other, as control, 2 m. below the surface and 50 cm. above the gravel on the lower edge of the sloping bank. All the snails were living a week later when the baskets were raised, reprovisioned with lettuce and replaced. On the 16th and 24th days of the experiment 95% of the snails were still alive. Two other wire baskets with the same number of molluscs but no food were lowered to rest on the bottom, one on the mud at a depth of 10.5 m., the other at a depth of 2.5 m. on the gravel slope. Forty-two days later the baskets were found to contain only broken empty shells. The molluscs had either died through lack of food or had been preyed upon by crayfish of the genus *Cambarus* which is abundant at Suresnes. M.MCK.

(383b) Twenty-five black or half-caste children from French Guiana harbouring intestinal helminths, *Wuchereria bancrofti*, or both were submitted to Thorn's test by a single injection of 8 mg. to 12.5 mg. of ACTH according to age and weight to determine the change in eosinophilia. In 23 cases the eosinophil count was not reduced. As non-parasitic eosinophils are usually diminished by ACTH and by cortisone, the two conditions could be differentiated to some extent by a test similar to Thorn's.

M.MCK.

(383c) As a result of 730 faecal examinations made by the Telemann-Rivas method in North Vietnam, Indo-China, Baugé found that the commonest helminths are *Trichuris trichiura* (494), *Ascaris lumbricoides* (398), *Ancylostoma duodenale* (175), *Necator americanus* (3), *Fasciolopsis buski* (87) and *Clonorchis sinensis* (10). In the discussion Brumpt remarked that at Hanoi he had never met with *Necator* ova. He attributed the great frequency of *Fasciolopsis* at Hongay to the recent considerable Chinese immigration and the use of pig manure in market gardening.

M.MCK.

(383d) Dana *et al.* review the incidence of ancylostomiasis in Tunisia and record its occurrence for the first time in El-Oudiane and Oum Douil, Cape Bon, in mining communities. They used tetrachlorethylene with success in 32 hookworm cases, giving one to three courses of treatment. The action of tetrachlorethylene on other intestinal helminths was less effective.

M.MCK.

384—Bulletin de la Société Vaudoise des Sciences Naturelles.

- a. ALTHERR, E., 1954.—"Les nématodes des étangs de Bavois (Vaud)." 66 (287), 33-46.
- b. ALTHERR, E., 1954.—"Les nématodes du sol du Jura vaudois (II)." 66 (287), 47-54.

(384a) Altherr lists 65 species of free-living nematodes found by him in the pools at Bavois (Vaud). Only one new species is new, viz., *Aporcelaimus minor* n.sp.

R.T.L.

(384b) Among the 13 species of free-living nematodes found in the soil of the Vaudois Jura one new genus is described and figured, viz., *Drepanodorus leptcephalus* n.g., n.sp. in the Dorylaiminae. The new genus is distinguished from *Aporcelaimus* by the size and shape of the spear which is 25-27 μ in length, from *Belondira* by the absence of a muscular perioesophageal sheath, and from *Dorylaimus* by the shape of the spear which on its distal portion is shaped like a scythe or a long sickle. Altherr briefly mentions the presence of *Duboscqia* sp. as a parasite of *Rotylenchus robusta*, *Dorylaimellus virginianus* and *Dorylaimus* sp. and small hyaline spheres apparently without nuclei, filling the whole length of *Tylenchorynchus dubia*.

R.T.L.

385—California Citrograph.

- a. CAMERON, J. W., BAINES, R. C. & CLARKE, O. F., 1954.—"Nematode resistance of trifoliate hybrid seedlings." 39 (11), 378, 406-407.

(385a) Cameron *et al.* give the results of tests of various hybrids of the trifoliate orange, *Poncirus trifoliata*, crossed with five *Citrus* species for their resistance to *Tylenchulus semi-penetrans*. They found that the trifoliate orange seedlings were only slightly infested as compared with *Citrus* seedlings. Of the total, 95% of the hybrid seedlings were either free or nearly free from infestation but only 18% of the nucellar seedlings or cuttings of the *Citrus* species were resistant. Evidence from older trees suggests that trifoliate hybrids become less resistant with age.

M.T.F.

386—Canadian Journal of Zoology.

- a. CHOQUETTE, L. P. E., 1954.—"A note on the intermediate hosts of the trematode, *Crepidostomum cooperi* Hopkins, 1931, parasitic in speckled trout (*Salvelinus fontinalis* (Mitchell)) in some lakes and rivers of the Quebec Laurentide Park." 32 (6), 375-377.

(386a) In the Chateau Beaumont area of the Quebec Laurentide Park, rediae and cercariae of *Crepidostomum cooperi* were found in the sphaeriid clams *Pisidium subtruncatum*,

P. compressum, *P. adbitum*, *P. Ilijeborgi* and *P. nitidum* in 2% to 3% of each species. The metacercariae were found in over 80% of the mayfly nymphs of *Hexagenia recurvata* and in about 20% of *Polymitarcys* sp. These clams and mayflies constitute new records of intermediate hosts for *C. cooperi*. Speckled trout were fed on infected mayfly nymphs and harboured mature worms 3-4 weeks later. M.MCK.

387—Canadian Medical Association Journal.

- a. FREEDMAN, S. O. & CLAMEN, M., 1954.—“A case of trichinosis simulating meningitis.” 71 (2), 160-161.

388—Ceylon Veterinary Journal.

- a. PERUMAL PILLAI, C. & SENEVIRATNA, P., 1954.—“‘Kumri’ (syn: kamri) in horses associated with ocular setariasis with a short note on attempted treatment.” 2 (3/4), 92-94.

(388a) Ocular setariasis in a horse in Ceylon caused by an immature female of *Setaria digitata* and associated with kumri, a disease of weakness and partial paralysis of the hind-quarters, is recorded. Previous work on the aetiology of kumri and its association with “worm in the eye” are reviewed. The opinion of Innes and co-workers that kumri is due to the larval stage of this nematode is supported. M.MCK.

389—Ciencia. Mexico.

- a. CABALLERO y C., E. & WINTER, H. A., 1954.—“Metacercariae of *Diplostomum spathaceum* (Rudolphi 1819) Braun, 1893 in freshwater fishes of Mexico.” 14 (4/6), 77-80. [Spanish summary pp. 79-80.]
- b. CABALLERO y C., E., BRAVO HOLLIS, M. & GROCOTT, R. G., 1954.—“Helmintos de la República de Panamá. XII. Descripción de dos nuevos tremátodos monogéneos, parásitos de peces marinos comestibles del Océano Pacífico del Norte.” 14 (4/6), 81-86. [English summary pp. 85-86.]
- c. WINTER, H. A., 1954.—“*Proctoeces macrovitellus* nov.sp., de un pez embiotócido del Océano Pacífico del Norte (Tremat., Fellodistom.).” 14 (7/8), 140-142. [English summary pp. 141-142.]

(389a) Caballero & Winter redescribe from Mexico the unencysted metacercariae of *Diplostomum spathaceum* from the vitreous humour of the eyes of *Cichlasoma aureum* and record considerably larger measurements (1.065 mm. to 1.153 mm.) than those of the type specimen as given by Hughes & Berkhoat (0.375 mm. to 0.465 mm.). M.MCK.

(389b) *Axine resplendens* n.sp. from *Tylosurus fodiator* in the north Pacific is distinguished from the five known species of *Axine* by the opisthaptor being wider than the body and containing two hooks and one anchor and 37 suckers in two groups of 31 and 6; by the testes, numbering about 200, and arranged centrally behind the ovary in irregular longitudinal rows; by the transverse tubular ovary, which is rounded and swollen on the left side; by the vitellaria extending around the testes (except in front of them) and anterior to the ovary; and by the spine in the terminal portion of the vagina. *Pterinotrema macrostomon* n.g., n.sp. from *Albula vulpes* in the north Pacific differs from other genera of the Microcotylidae in having a large oral sucker surrounded by a striated fringe, a latero-dorsal conical projection on the cephalic extremity, a larval opisthaptor with two anchors and three hooks and a definitive oblique opisthaptor bearing eight clamps each with two similar facing sclerites united proximally, open distally and lined with feather-like spines. M.MCK.

(389c) *Proctoeces macrovitellus* n.sp., a fellodistomatid trematode, is described from the intestine of the marine perch *Cymatogaster aggregata* off the south Californian Coast. The body is short as compared with its width, and the genital pore is pre-bifurcal and on the right of the prepharynx. The vitelline follicles are pre-testicular, relatively large in size, few in number and arranged in groups of eight to nine follicles. R.T.L.

390—Citrus Leaves.

- a. CAMERON, J. W., BAINES, R. C. & CLARKE, O. F., 1954.—“Resistance of hybrid trifoliolate orange seedlings to nematode infestation.” **34** (9), 6–7, 31.

(390a) [This paper is substantially the same as that by the same authors in *Calif. Citrogr.*, 1954, **39**, 378, 406–407. For abstract see No. 385a above.]

391—Clinica Veterinaria. Milan.

- a. BRIGNOLI, C., 1954.—“Sopra una sindrome nervosa simulante lesioni da cenurosi cerebrale.” **77** (6), 167–168.

392—Comptes Rendus des Séances de la Société de Biologie. Paris.

- a. SCHWETZ, J., FORT, M. & BAUMANN, H., 1954.—“Double problème de l'infection bisexuée, d'un seul planorbe par des cercaires de *Schistosoma rodhaini* et hybridation de *S. rodhaini* et de *S. mansoni*.” **148** (15/18), 1507–1509.
- b. EBEL, J. P. & COLAS, J., 1954.—“Propriétés des réserves protéiques de l'oocyte de *Parascaris equorum*.” **148** (19/20), 1580–1583.

(392a) Three mice were given double infections with *Schistosoma mansoni* from a single *Planorbis glabratus* and with *S. rodhaini* from a single *P. pfeifferi*. No eggs of *S. mansoni* were subsequently observed, as would be expected since infections from single molluscs are usually unisexual. On the 36th to 41st days, however, typical *S. rodhaini* eggs were passed, showing that either a bisexual infection of *S. rodhaini* had occurred or that hybrid eggs were being produced. Schwetz *et al.* consider the former more likely and are continuing their investigations.

M.MCK.

(392b) Ebel & Colas have shown that the vitelline inclusions in the oocytes of *Parascaris equorum* consist of a holoprotein which is soluble in ethyl alcohol. Paper chromatography, after hydrolysis, revealed the presence of nearly 20% of proline in addition to smaller amounts of other amino-acids.

S.W.

393—Copeia. New York.

- a. RUPP, R. S. & MEYER, M. C., 1954.—“Mortality among brook trout, *Salvelinus fontinalis*, resulting from attacks of freshwater leeches.” Year 1954, No. 4, pp. 294–295. [Reprint.]

(393a) To control the loss, by poaching and bird predation, of *Salvelinus fontinalis* which congregated at the spring holes of Quimby Pond, Franklin County, bushes were introduced to provide shelter. This created an ideal habitat for *Macrobdella decora* and *Haemopsis grandis* which attacked the trout. On a trout which was dying from loss of blood, six leeches were found attached in the gill region and one had rasped through to the ventral aorta. In all, twenty trout were reported dead during July, 1953. Only the larger fish were attacked. Destruction of healthy, adult trout by leeches is unusual and undoubtedly brought about by the special conditions of large numbers of trout and leeches in prolonged contact.

G.I.P.

394—Cornell Veterinarian.

- a. KENNEDY, P. C., 1954.—“The migrations of the larvae of *Ascaris lumbricoides* in cattle and their relation to eosinophilic granulomas.” **44** (4), 531–565.

(394a) Focal inflammatory changes 0.1 cm. to 2 cm. in diameter in the liver and lungs are common in cattle autopsied at the New York State Veterinary College and cause substantial economic loss in local meat-packing houses. The lesions were yellowish in colour and the infiltrating cells were predominately eosinophils. Of 70 animals examined 40 had typical gross lesions. Artificial gastric digestion and serial sections of these lesions revealed a parasite in the lung of one animal only. Later this was found to be similar to the larva of *Ascaris lumbricoides* recovered from the lungs of calves ten days after experimental inoculations with *A. lumbricoides* ova. A series of experiments on calves and laboratory animals gave evidence

of larval migration in the liver and lungs although no grossly visible lesions resulted from an initial exposure. But in animals subjected to subsequent exposures there were grossly visible lesions and an eosinophilia. The gross and microscopical features of the lesions produced in sensitized cattle were similar in every respect to those occurring naturally in cattle and to those of Löffler's syndrome in man.

R.T.L.

395—Current Science. Bangalore.

- a. SAXENA, V. K., 1954.—“*Neodiplostomoides milvii* n.sp. (family Diplostomidae: Trematoda).” [Correspondence.] **23** (8), 268–269.
- b. RAO, K. H., 1954.—“A new bothriocephalid parasite (Cestoda) from the gut of the fish *Saurida tumbil* (Bloch).” [Correspondence.] **23** (10), 333–334.
- c. GANAPATI, P. N. & RAO, K. H., 1954.—“On black-grub disease in the fresh-water carp *Catla catla*.” [Correspondence.] **23** (12), 401–402.

(395a) *Neodiplostomoides milvii* n.sp., collected from the common kite, *Milvus migrans* *govinda* at Allahabad, is distinguished from the other known species, *N. mehrii*, by vesicular ends on the intestinal caeca, the wedge shape of Mehlis' gland (which is situated ventrally on the left side), by the S-shape of the seminal vesicle, by the form of the testes (the anterior being dumb-bell shaped and the posterior H-shaped with posteriorly compressed arms), and by the presence of only a few eggs in the uterus.

M.MCK.

(395b) *Bothriocephalus ganapattii* n.sp., in the Indian marine fish *Saurida tumbil* from the Waltair coast, lies free in the intestine but its scolex is embedded in the liver and is enveloped by an adventitious cyst. In some young infected fish the parasites with free scolices were observed in the body cavity just below the liver, in others the scolices had just invaded the liver. [Although the new species is named it is not described].

R.T.L.

(395c) High mortality among fingerlings of the fresh-water fish *Catla catla* in one of the State fisheries at Samalkot, India, is attributed to the presence of larvae of *Diplostomum* sp., large numbers of which were encysted under the skin and showed as ovoid or irregular black patches. This is the first record of *Diplostomum* larvae in India.

R.T.L.

396—Danish Medical Bulletin.

- a. NORN, M. S., 1954.—“Oxyuriasis. Demonstration of threadworm eggs by a new modification of the adhesive cellophane method.” **1** (1), 23–24.

(396a) [This is a shortened version of a paper published by the author in Danish in *Ugeskr. Laeg.*, 1954, **116**, 77–82. For abstract see Helm. Abs. **23**, No. 178a.]

397—Deutsche Landwirtschaft.

- a. BAUMANN, G., 1954.—“Möglichkeiten und Methoden der Heilung von Pflanzenkrankheiten durch Wärmeeinwirkung.” **5** (2), 76–80.

(397a) Baumann reviews the warm-water treatment of plants for the control of diseases due to fungi, insects, viruses and nematodes. Amongst the last he mentions the control of *Didymenchus dipsaci* in narcissus bulbs, *Aphelenchoides ritzema-bosi* in begonias, chrysanthemums and other ornamentals and *Anguina tritici* in seed grain.

M.T.F.

398—Deutsche Pelztierzüchter (Der).

- a. HOHNER, L., 1954.—“Bandwurmfinnen als Schmarotzer des Sumpfbibers.” **28** (7), 119–121.

(398a) Hohner gives a short popular account of four cestode larvae which have been reported for coypu, viz., hydatid, *Cysticercus tenuicollis*, *C. taeniaeformis* and *Coenurus serialis*. The two latter have only been reported once for this host.

A.E.F.

399—Deutsche Tierärztliche Wochenschrift.

- a. STENGLIN, VON, 1954.—“Darmparasiten bei Zuchthengsten.” **61** (47/48), 487-489.

(399a) During the period 1948 to 1954 detailed faecal examinations were carried out on all stallions (167 of light and 306 of heavy breeds) at the Warendorf (Westphalia) stud farm. Incidence of strongyles was much higher than that of ascarids in all breeds while heavy breeds showed more severe infection with both parasites than light horses. Stallions newly arrived at the stud had on the whole lighter infections than those which had been there for a year or more. Horses of light breeds over ten years old showed greater resistance to both parasites than three to four-year-olds: this applies also to heavy breeds in the case of ascarids, but younger horses had a slightly lower incidence of strongyles than those over ten years old. Heavy breeds from Belgium had lighter infections than those of Westphalian stock. Horses fed on an equal mixture of oats and bran had lighter infections than those given other food.

A.E.F.

400—Documenta de Medicina Geographica et Tropica. Amsterdam.

- a. WEYTS, E. J., 1954.—“Eye complications in onchocercosis.” **6** (2), 155-156.

401—Down to Earth. Midland, Michigan.

- a. DIETER, C. E., 1954.—“Techniques for collecting and isolating plant parasitic nematodes.” **10** (2), 8-11.

(401a) General recommendations are given for the collection of soil samples in the field. Methods of processing soil for the extraction of nematodes are described, including screening, decantation and the Baermann funnel technique. The separation of nematodes from plant materials and the best methods of relaxing and fixing the nematodes are dealt with briefly.

M.T.F.

402—East African Medical Journal.

- a. TEESDALE, C., 1954.—“Freshwater molluscs in the Coast Province of Kenya with notes on an indigenous plant and its possible use in the control of Bilharzia.” **31** (8), 351-365.
b. USBORNE, V., 1954.—“Some notes on urinary bilharziasis in Sukuma school children especially as regards scholastic performance.” **31** (10), 451-458.
c. BARTON, W. L., 1954.—“*Filaria bancrofti* as a cause of haematuria.” **31** (10), 477-478.
d. BARTON, W. L., 1954.—“A case of filariasis showing fever, orchitis, urticaria and impotence.” **31** (10), 478-479.

(402a) In the Coast Province of Kenya schistosomiasis is due almost entirely to *Schistosoma haematobium*. The few cases of *S. mansoni* infection occurred in labourers imported from Nyanza. The species of molluscs found in the area, with data on their breeding places and the type of vegetation favoured, are tabulated but most of them were collected in the Digo and Kilifi districts. *Bulinus africanus globosus* is the probable vector. Experiments with indigenous fish did not give much promise for controlling molluscs. Some preliminary experiments were made with the roots of *Neorautenenia pseudopachyrhizus*. Owing to its saponin content this common coastal herb may prove of value as a molluscicide.

R.T.L.

403—Experimental Parasitology. New York.

- a. SENGER, C. M., 1954.—“Notes on the growth, development, and survival of two echinostome trematodes.” **3** (6), 491-496.
b. STIREWALT, M. A., 1954.—“Effect of snail maintenance temperatures on development of *Schistosoma mansoni*.” **3** (6), 504-516.
c. STAUBER, L. A., 1954.—“Application of electrophoretic techniques in the field of parasitic diseases.” **3** (6), 544-568.

(403a) Using body length, fresh weight and dry weight as criteria for the determination of growth rates, Senger has studied *Echinoparyphium recurvatum* and *Echinostoma revolutum* in experimentally infected chicks and rats. In *E. revolutum* in chicks rapid growth continued until

the twenty-third day and then ceased altogether; eggs first appeared in the uterus on the tenth or eleventh day. Rats were not easily infected with this species, no adults being recovered from 21 out of the 22 which had been fed metacercariae. *Echinoparyphium recurvatum* grew rapidly in chicks until the sixth day when eggs were first seen in the uterus; thereafter growth decreased. During the first few weeks of life chicks developed an age resistance to *E. recurvatum*. Rats could be infected with this species but development took place more slowly. In young chicks *E. recurvatum* was localized in the upper duodenum and *Echinostoma revolutum* in the colon, cloaca or last two inches of the ileum. S.W.

(403b) Stirewalt confirms that the rate and duration of *Schistosoma mansoni* infections in its intermediate hosts are markedly influenced by temperature. When *Australorbis glabratus* were exposed to five miracidia each and subsequently maintained at 23°C. to 25°C., 59% became infected; at 26°C. to 28°C., 78% became infected. With one miracidium infection occurred in 9% at 23°C. to 25°C. and 35% at 26°C. to 28°C. The prepatent period of 35 to 56 days at 23°C. to 25°C. decreased to 18 days at 31°C. to 33°C. but snail mortality increased up to 100% at 36°C. to 38°C. When infected snails were kept at 26°C. to 28°C. only two were observed to lose their infection and this occurred after more than a year, but of those kept at 23°C. to 25°C. 10% lost their infection within three months. It was also found that when reared at 26°C. to 28°C. the cercariae were more capable of penetrating the skin of mice and reached maturity in greater numbers. M.MCK.

(403c) Stauber, reviewing the literature on the application of electrophoresis to the study of host blood proteins and parasite extracts, deals with trichinellosis, schistosomiasis and protozoal diseases. He evaluates some of the published results, suggests further lines of research and gives a bibliography with 78 references. M.MCK.

404—FAO Plant Protection Bulletin. Rome.

- a. MILLER, P. R., 1954.—“Plant disease situation in the United States.” 2 (11), 168–170.

(404a) This is a review of nematode damage reported in the U.S.A. Several species of *Mentha* have been attacked by *Meloidogyne*, *Aphelenchoides*, *Paratylenchus* and *Longidorus*. Ectoparasitic nematodes, e.g. *Tylenchorhynchus* spp., are thought to cause damage to various crops. A survey of turf samples from golf courses where grasses showed chlorotic symptoms showed *Tylenchorhynchus* spp. to be widely distributed and *Rotylenchus erythrinae* in large numbers occurred in more than half the cases investigated. Other samples contained *Heterodera*, *Pratylenchus*, *Psilenchus hilarulus*, *Hoplolaimus coronatus*, *Cricanemoides*, *Paratylenchus* and *Ditylenchus*. M.T.F.

405—Folia Clinica et Biologica. São Paulo.

- a. VIEIRA, C. B., 1954.—“Infestação múltipla por *Taenia saginata* e úlceras duodenal crônica. Considerações sobre um caso.” 21 (1), 3–6. [English summary p. 6.]
b. COUTINHO, J. O., CROCE, J., CAMPOS, R., AMATO NETO, V. & FONSECA, L. C., 1954.—“Contribuição para o conhecimento da estrogiloidiase humana em São Paulo.” 21 (1), 20–48; (2), 93–120.

(405b) [This paper is continued from *Folia clin. biol.*, S. Paulo, 1953, 20, 141–176.]

406—Fortpflanzung, Zuchthygiene und Haustierbesamung. [Supplement to Deutsche Tierärztliche Wochenschrift.]

- a. WETZEL, R., 1954.—“Konstitution und Wurmbefall.” 4 (1), 36–39. [English summary p. 39.]

(406a) Parasitic diseases are largely man made. Changes of environment, food etc. during domestication were the most important factors in modifying resistance to helminth infections. The outbreak and course of helminthiasis are largely determined by the constitution of the host which, besides its genetic make-up, depends on suitable feeding and normal keeping. R.T.L.

407—Gazeta Médica Portuguesa.

- a. VALENTE, J. L. P., 1954.—“Sobre a incidência da anquilostomíase em Angola.” 7 (3), 531-532. [English & French summaries p. 532.]

(407a) Examination of the faeces of 5,264 inhabitants comprising practically the whole population of the Chitato district, Lunda, north-east Angola, gave a hookworm infection rate of 21% in Sector do Canzar, 22% in Sector do Luia and 46% in Sector do Cachimo. R.T.L.

408—Gazette Médicale de France.

- a. PAYET, M., PENE, P., CAMAIN, R. & ARDOUIN, C., 1954.—“Bilharzioses viscérales à *Schistosoma haematobium*.” 61 (12), 813-814, 817-819.

(408a) Although *Schistosoma haematobium* infection is chiefly revealed by its urinary manifestations it may, like *S. mansoni*, occur in the genitalia, lungs, liver, heart, spleen, kidney and alimentary canal. In some instances simultaneous multiple invasions of the viscera can give rise to a rapidly fatal form of parasitic septicaemia which is difficult to diagnose. R.T.L.

409—Grower. London.

- a. MATHER, J. C., 1954.—“Treating bulbs.” 42 (5), 209; (6), 243; (7), 288.

(409a) These three articles deal with the eradication of stem eelworm from narcissus bulbs by the well known hot-water treatment. Mather also deals with the important aspects of prevention of reinfestation by proper husbandry. In mentioning the use of chlorophenol added to the hot-water, he states [erroneously] that it has no effect on active eelworms. J.B.G.

410—Harefuah.

- a. ELIAKIM, M. & DAVIES, A. M., 1954.—[The incidence of bilharziasis in immigrants from Yemen, Iraq, Morocco and Iran.] 47 (6), 121-124. [In Hebrew: English & French summaries p. 124.]

(410a) In immigrants into Israel positive skin tests for schistosome infection were obtained at the transitional camps in 37.9% of the males and 30.4% of the females out of 690 entering from the Yemen, in 12.2% of the males and 4.6% of the females out of 414 from Iraq, and in 6.7% of the males and 6.9% of the females of 235 immigrants from Iran. A positive complement fixation test was given by one out of 361 immigrants from Morocco. Attention is drawn to the risk involved by the location of transitional camps near the river Yarkon in which there are potential intermediate hosts of schistosomes. R.T.L.

411—Hospital. Revista Médica de Santander, Colombia.

- a. PATIÑO CAMARGO, L., 1954.—“Síntesis sobre parasitismo intestinal.” 14 (24/25), 11-19.

(411a) This is a review of some of the treatments, and incidence, of the 12 helminth parasites of man recorded in Colombia. M.MCK.

412—Indian Journal of Malariology.

- a. PARTHASARATHY, T. & KRUSE, C. W., 1954.—“Effect of organic matter in the control of *Culex fatigans* by D.D.T. larvicide.” 8 (1), 33-43.
b. CHERNIN, E., 1954.—“Problems in tropical public health among workers at a jute mill near Calcutta. VI. The prevalence of filariasis in the labour force with a note on its transmission.” 8 (2), 77-83.
c. PRAKASH, S., 1954.—“Note on natural parasitic infections found in *Rattus rattus* of Delhi municipal area.” 8 (2), 115-116.

(412a) The customary practice of applying D.D.T. larvicide on a pound per acre basis is of no value in the control of *Culex fatigans*, vector of *Wuchereria bancrofti*, in sewage polluted pools. In laboratory studies a D.D.T. dosage of 0.2 p.p.m. gave satisfactory control in all

ranges of organic solids up to 8,000 p.p.m. but this may have to be increased to 0.5 p.p.m. for grossly polluted pools. R.T.L.

(412b) Blood films from 658 workers, resident within the compound, at a jute mill in West Bengal showed microfilariae of *Wuchereria bancrofti* in 45 and of *W. malayi* in one. Two out of 97 *Culex fatigans* taken from workers' quarters contained filarial larvae. R.T.L.

(412c) The average monthly prevalence of *Taenia* cysts found in 616 *Rattus rattus* supplied by the municipal health organization of Dehli during 1950-52 is shown in a table which also includes protozoal infections. The total number of rats containing cysts was 248 and the greatest number of cysts in a single rat was 18. The cysts varied in size from that of a small millet to that of a pea. R.T.L.

413—Indian Journal of Medical Research.

- a. SHRIVASTAV, J. B., 1954.—“Comparative efficiency of three different techniques for the diagnosis of cystic forms of intestinal protozoa and helminthic ova in faeces.” 42 (4), 497-508.

(413a) The comparative efficiency for the detection of helminth ova of (i) direct faecal examination in normal saline and 3% Lugol's iodine, (ii) acid-ether concentration and (iii) the zinc sulphate centrifugal flotation technique was tested on 100 fresh faecal samples. Method (iii) was the most efficient for concentrating and detecting the eggs of *Ascaris lumbricoides*, *Enterobius vermicularis* and *Hymenolepis nana* and was almost foolproof for hookworm ova but it was inferior to method (i) for *Trichuris trichiura*. Shrivastav concludes that direct faecal examination cannot be dispensed with and that the highest yields (99%) of helminth eggs are obtained by combining methods (i) and (iii). G.I.P.

414—Indian Journal of Medical Sciences.

- a. DASTUR, D. K., 1954.—“Microfilarial lesions in the human brain. A case report.” 8 (10), 709-711.
b. VORA, D. D., 1954.—“Threadworm.” 8 (10), 715-718.

(414a) Two small cellular aggregates consisting of neutrophils and microglial histiocytes surrounding fragments of nematode larvae were found, one in sections of the cerebral cortex, the other in the grey matter of the hippocampal cortex. Similar aggregates were seen in sections of the liver. These lesions were apparently incidental as the patient had succumbed to the combined effect of haemorrhagic necrosis of the liver and lobular pneumonia. R.T.L.

(414b) The life-cycle and current methods of treatment for *Enterobius vermicularis* are summarized. Rectal swabs should be negative for seven consecutive days after treatment. About 19% of those infected lose their infection spontaneously without treatment. R.T.L.

415—Indian Medical Gazette.

- a. KANT, L. & RAMA, K., 1954.—“A field survey of *Fasciolopsis buski* in Chandrain area of Saharsa District (Bihar).” 89 (2), 89-94.

(415a) A group of 18 villages in the Chandrain area of the Saharsa district of Bihar was surveyed for *Fasciolopsis buski* infection. 3,136 individuals were dosed with tetrachlorethylene and magnesium sulphate. 231 passed flukes. Eleven out of 16 domestic pigs collected from different villages had *F. buski* eggs in the faeces. 60% of the *Indoplanorbis exustus* collected carried cercariae: 2% of these snails liberated a pigmented, short-tailed, monocercous cercaria and 58% contained a furcocercous cercaria. Encysted cercariae were found on two out of the 26 leaves of “bhet” and lotus examined and on three out of 34 water-chestnuts. The clinical symptoms are described. The majority of the cases showed a high eosinophilia with gastro-intestinal disturbances. About 60% of those treated were freed from worms by the first dose, about 35% required a second and 5% a third dose. R.T.L.

416—Indian Tobacco.

- a. PHILIP, A. & PAL, N. L., 1954.—“The rootknot nematode (*Heterodera marioni* Goodey) on tobacco.” 4 (2), 78–83.

(416a) Root-knot nematodes have been found damaging tobacco in several districts of India. The authors give a popular account of the disease and of the control measures which have been recommended in Southern Rhodesia, in the U.S.A. and in India, Ceylon and Indonesia.

M.T.F.

417—Indian Veterinary Journal.

- a. RAMANUJACHARI, G. & ALWAR, V. S., 1954.—“Further observations on parafilariasis(?) of elephants.” 31 (3), 206–209.

(417a) Haemorrhagic filariasis in elephants is endemic in the forest areas of Nilambur, Ooty and especially Wynad in Madras State. The adults occur in soft subcutaneous nodules about the size of a gooseberry on the lateral and ventral aspects of the abdomen and to a less extent on the outer aspect of the thighs. Blood oozes from the nodules and teems with un-sheathed microfilariae. The nodules become fibrosed and hardened and may become caseated. The bleeding nodules are centres of chronic inflammation and severe pruritus. Portions of a female worm were recovered from a nodule removed under local anaesthesia and the parasite is tentatively diagnosed as a species of *Parafilaria*.

R.T.L.

418—Iryo. Tokyo.

- a. YAMASAKI, T. & SARUTA, E., 1954.—[Clinical studies on hookworm.] 8 (9), 31–36. [In Japanese: English summary p. 36.]

419—Japanese Safety Forces Medical Journal.

- a. YAMAZAKI, H., ENDO, K., TOYAMA, K., SATO, K. & YOSHIMURA, R., 1954.—[Incident rate on *Ascaris* egg carriers among the Maizuru training unit personnel.] 1 (1), 39–40. [In Japanese: English summary p. 40.]
b. IJUIN, T. & ARISATO, S., 1954.—[Report of filarial infestation among troops in Camp Hario.] 1 (9), 271–275. [In Japanese: English summary p. 275.]

(419a) The incidence of *Ascaris* carriers in 600 enlisted and 148 commissioned personnel of an army training unit at Maizuru was 43.33% and 38.51% respectively. The local incidence was higher in rural than in urban districts. In the Kanto area it was 37.5% whereas the rates for Hokkaido, Tohoku, Shikoku and Kyushu were 45.0% each.

R.T.L.

(419b) Blood smears taken from 1,624 troops at Hario camp on four consecutive days between 10 p.m. and midnight showed microfilariae of *Wuchereria bancrofti* in seven individuals. Five of them resided in Nagasaki Prefecture and one in each of the Prefectures of Kagoshima and Kumamoto.

R.T.L.

420—Jikeikai Medical Journal. Tokyo.

- a. MATSUMOTO, S. & IMAWARI, K., 1954.—“Studies on parasite-allergy.” 1 (1), 70–71.

(420a) From experimental work Matsumoto & Imawari have shown that rats infected with *Hymenolepis diminuta* are sensitive to extracts of *H. diminuta*. *Ascaris* produced reactions which differed from those caused by *Hymenolepis* and there were also differences in the reactions provoked by *Ascaris* from man and from pigs. The fluid in which *Ascaris* had been cultured produced skin and intestinal reactions and serum precipitation. The reactions of sensitized guinea-pigs to emulsions of whole *Ancylostoma duodenale* were more marked than those to alcohol or ether extracts. The sputum from cases of paragonimiasis appeared to have a sensitizing ability.

S.W.

421—Journal of the American Veterinary Medical Association.

- a. LINK, R. P. & SMITH, J. C., 1954.—“Treatment of canine tapeworms with atabrine.” **125** (933), 461-462.

(421a) A preliminary report is given on the action of atebtrin (in the dose of 10 mg. or 20 mg. per lb. body-weight) on tapeworms in 23 naturally infected dogs. All the treated dogs passed worms. Ten of eleven dogs were freed from *Taenia pisiformis* and ten of twelve dogs from *Dipylidium caninum*. There was no evidence of toxicity from atebtrin. G.I.P.

422—Journal of Animal Science.

- a. RICHARD, R. M., SHUMARD, R. F., POPE, A. L., PHILLIPS, P. H., HERRICK, C. A. & BOHSTEDT, G., 1954.—“The effect of certain mineral supplements on lambs infected with the stomach worm (*Haemonchus contortus*).” **13** (3), 694-705.

(422a) Experiments were conducted on the effect of feeding lambs infected with stomach worms, with mineral supplements. Lambs obtained the greatest resistance to infection when fed a mixture of cobalt and steamed bone meal, the effect of which may have been partly due to an increased rate of synthesis of vitamin B₁₂ in the rumen. It appears that heavily parasitized lambs have an increased requirement for factors in steamed bone meal but the exact mechanism of its action is unknown. D.M.

423—Journal of the Australian Institute of Agricultural Science.

- a. COLBRAN, R. C., 1954.—“Problems in tree replacement. II. The effect of certain methods of management on the nematode fauna of an orchard soil.” **20** (4), 234-237.
b. FISHER, J. M. & WHITE, N. H., 1954.—“Specific status of root-knot nematode.” **20** (4), 252.

(423a) Colbran found that after apple trees attacked by *Pratylenchus coffeae* had been removed from the soil, the nematode population was maintained by growing tomatoes or by allowing weeds especially *Rumex acetosella* to grow. *P. coffeae* remained alive for eight months in moist root-free soil. The soil population of *P. coffeae*, *Trichodorus* sp. and *Paratylenchus macrophallus* as well as other non-parasitic nematodes was considerably reduced by mulching with sawdust. This effect appears to be due to the suppression of all plant growth. J.B.G.

(423b) Fisher & White report the occurrence of *Meloidogyne incognita* var. *acrita* on the roots of cucumber in the Sydney Botanical Gardens. This species is quite widespread in the area and has been found in other parts of New South Wales. M.T.F.

424—Journal Belge de Radiologie.

- a. DE WITTE, 1954.—“Oxyures vermiculaires.” **37** (1), 68-69.

425—Journal of the Bombay Natural History Society.

- a. HARRISON, J. L., 1954.—“Notes on land leeches.” **52** (2/3), 468-472.
b. SANJEEVA RAJ, P. J., 1954.—“A synopsis of the species of the genus *Ozobranchus* (de Quatrefages 1852) Hirudinea — Annelida.” **52** (2/3), 473-480.
c. CHAMPION-JONES, R. N., 1954.—“Leeches.” **52** (2/3), 650-651.
d. BAILEY, F. M., 1954.—“Land leeches.” **52** (2/3), 652.
e. WILLIAMS, J. L. H., 1954.—“Land leeches.” **52** (2/3), 652-655.
f. MATHEWS, R. S., 1954.—“Land leeches.” **52** (2/3), 655-656.

(425a) Harrison lists eight species of land leeches which have been recorded from the Indo-Malaysian region (excluding the Philippines), gives a key for their differentiation and discusses their food, length of life and habits. The general purpose repellent [first described by Traub *et al.*, for abstract see Helm. Abs., **21**, No. 26d] used for impregnating army uniforms against mosquitoes, lice, bed bugs, fleas and other pests proved very effective against land and water leeches and remained effective even after much wading through rivers and the washing of clothes but there is at present no preparation for application to the skin. R.T.L.

(425b) The synonymy, diagnostic features, dimensions, hosts and habitats of the six species of *Ozobranchus* are succinctly summarized. There is a key for their differentiation. A table sets out the principal anatomical characters, hosts, habitats and locality of each species.

R.T.L.

(425c, d, e, f) Champion-Jones, Bailey, Williams and Mathews relate their personal experiences and observations in reply to questions raised by Smythies in his notes on land leeches in *J. Bombay Nat. Hist. Soc.*, 1953, **51**, 954-958.

R.T.L.

426—Journal of Clinical Pathology. London.

- a. NAIRN, R. C. & DUGUID, H. L. D., 1954.—“*Oxyuris granuloma* of the endometrium.” **7** (3), 228-230.

(426a) A granuloma of the endometrium, removed by uterine curetting, contained a gravid *Enterobius vermicularis*. Around the granulomatous area the endometrial stroma was heavily infiltrated with eosinophils.

R.T.L.

427—Journal of Comparative Pathology and Therapeutics.

- a. GIBSON, T. E., 1954.—“Studies on *Trichostrongylus axei*. II. The pathogenesis of *T. axei* in sheep maintained on a high plane of nutrition.” **64** (4), 360-370.

(427a) Artificial infection with *Trichostrongylus axei* of three two-month-old Dorset Horn lambs, maintained on a high level of nutrition, produced severe parasitic gastritis from which two of the lambs died. The third lamb suffered a check in weight gain until resistance had been developed. Haematological examination of the three sheep showed no change from the normal. A feature of previous work on lambs maintained on a low level of nutrition was the change in the blood picture. Comparisons between the experiments are made and it is suggested that the anaemia in lambs on a low plane diet may have been caused by the worms absorbing large amounts of vitamins and trace elements from the gut contents. The abomasal lesions caused by *T. axei* varied at different stages of the disease. Both lambs which died eight to ten weeks after infection showed severe abomasitis but the surviving lamb showed only a large number of ringworm-like lesions on the mucous membrane of the abomasum 39 weeks after infection.

D.M.

428—Journal of the Florida Medical Association.

- a. SAMS, W. M. & GARRARD, H. F., 1954.—“Creeping eruption: evaluation of therapy.” **41** (2), 112-114.
b. GIFFORD, J. P., 1954.—“Perforation of the cecum by ascaris.” **41** (2), 118.

(428a) In creeping eruption the judicious use of topical applications of ethyl chloride or dry ice brings about an inflammatory reaction which results in the mechanical removal of the parasite. That systematic treatment by hetrazan has proved disappointing or ineffective is illustrated by eight cases and by quotations from letters received from a number of physicians.

R.T.L.

429—Journal of Helminthology.

- a. CROFTON, H. D. & THOMAS, R. J., 1954.—“A further description of *Nematodirus battus* Crofton and Thomas, 1951.” **28** (3/4), 119-122.
b. BIJLOO, J. D., 1954.—“A new method for estimating the cyst contents of the potato-root eelworm *Heterodera rostochiensis* Wollenweber.” **28** (3/4), 123-126.
c. SHELSWELL, E. M., 1954.—“A re-description of *Echinostephilla virgula* Lebour, 1909.” **28** (3/4), 127-134.
d. JAISWAL, G. P. & SINGH, S. N., 1954.—“On two new trematodes of the genus *Philophthalmus* Looss, 1899, from the eyes of birds in Hyderabad, Deccan.” **28** (3/4), 135-142.
e. SARWAR, M. M., 1954.—“On the transference of *Parabronema skrjabini* Rassowska, 1924 to *Squamanema* Thiel, 1925 and its occurrence in sheep and goats in Indo-Pakistan.” **28** (3/4), 143-150.

- f. SARWAR, M. M., 1954.—“On the occurrence of *Ostertagia pinnata* Daubney, 1933, in association with *Ostertagia trifurcata* Ransom, 1907 in India and Great Britain.” 28 (3/4), 151–154.
- g. SINGH, S. N. & RAO, V. R., 1954.—“On a species of *Physaloptera* causing a subcutaneous abscess in the neck of an Indian.” 28 (3/4), 155–158.
- h. YEH, L. S., 1954.—“On a new trematode *Allechinostomum renale* sp. nov. (Trematoda: Echinostomatidae), from *Pelecanus erythrorhynchos*.” 28 (3/4), 159–164.
- i. YEH, L. S., 1954.—“On two new species of the genus *Serticeps* (Nematoda: Schistorophidae) from the gizzard of birds.” 28 (3/4), 165–170.
- j. BROWN, K. N., 1954.—“Some observations on the behaviour of *Cercaria dorchia* Rothschild, 1935.” 28 (3/4), 171–182.
- k. JAMES, P. M., 1954.—“On some helminths from British small mammals, with a re-description of *Echinorhynchus rosai* Porta, 1910.” 28 (3/4), 183–188.
- l. FAHMY, M. A. M., 1954.—“On some helminth parasites of the otter, *Lutra lutra*.” 28 (3/4), 189–204.
- m. PARNELL, I. W., RAYSKI, C., DUNN, A. M. & MACKINTOSH, G. M., 1954.—“Some observations on the worm egg counts of Scottish hill lambs.” 28 (3/4), 205–219.

(429a) A more detailed and illustrated account is now given of *Nematodirus battus* described by Crofton & Thomas in 1951 [for abstract see Helm. Abs., 20, No. 501b] from sheep in north-east England and Scotland. The male differs from *N. arizonensis* in being twice as long. The lateral lobes of the bursa are rounded; the spicules are shorter, measuring only 850 μ –950 μ in length. The terminal portion of the spicules ends in a flattened, pointed projection which differentiates *N. battus* from *N. roscidus* in which it is lanceolate. The female has a long and pointed tail. R.T.L.

(429b) As the contents of *Heterodera rostochiensis* cysts vary considerably in quantity, it is impossible to determine the infectivity of a soil sample from the number of cysts present. Pre-soaking of the cysts is shown to have no advantage. A new method has therefore been devised. Dry cysts are cut as recommended by Reid. The cysts are then placed in water in a CEKA-homogenizer, type UM. The stirring spindle is placed in a bottle which has three vertical ridges and rotated from 8,000 to 15,000 times per minute for three minutes. At every rotation the cut cysts are thrown outwards on to the glass wall of the bottle and hurled against the ridges. All the eggs and larvae are thus shaken free from the cyst walls. Even when spun for 25 minutes they showed no injury. By comparing in a hatching experiment a suspension of eggs prepared by this method with an adequate sample of uncut cysts, it is now possible to get more information about the real infectivity of the cysts. R.T.L.

(429c) *Echinostephilla virgula*, from *Arenaria interpres*, which occupies an isolated position in the Digenea is now more fully described. The two minute rows of head spines in the region of the oral sucker are incomplete ventrally, in no way resembling those of the Echinostomatidae. Moreover, *E. virgula* is of a much thicker build, the uterine eggs contain miracidia and the vitellaria are poorly developed. It cannot therefore be placed in the Echinostomatidae. It is similar to *Parorchis* and is included provisionally in the Philophthalmidae. R.T.L.

(429d) *Philophthalmus mirzai* n.sp. from the orbital cavity of the kite, *Milvus govinda*, and *P. indicus* n.sp. from that of the smaller white scavenger vulture, *Neophron percnopterus ginginianus*, were collected near Hyderabad. Both species differ from previously described forms in the anterior position of the genital aperture, in front of the gut bifurcation. They are differentiated from one another by the position of the gonads which in *P. indicus* are at the extreme caudal end but in *P. mirzai* are more anteriorly placed. Moreover, in *P. mirzai* the ovary is smaller, the cirrus pouch is posterior to the acetabulum and the vitelline follicles are more restricted in range. R.T.L.

(429e) Sarwar reviews the species of *Parabronema*, transfers *P. skrjabini* to *Squamanema* as *S. skrjabini* (Rassowska, 1924) n.comb. and reports on its occurrence in Indo-Pakistan, both in sheep and goats. He notes that the bright red colour of the living worms renders them liable to be mistaken for *Haemonchus* sp. R.T.L.

(429f) The presence of *Ostertagia trifurcata* in sheep and goats in India and of *O. pinnata* in sheep in England is now recorded for the first time. Sarwar notes that the spicules of these two species are very similar but those of *O. trifurcata* are apparently cleft. The genital cone is also shown in two figures to be markedly different. R.T.L.

(429g) Four female nematodes were evacuated from a purulent abscess in the neck of a Hindu girl in Hyderabad-Deccan. Three were decomposed but one is described and illustrated. They belong to the genus *Physaloptera* but in the absence of a male specimen could not be specifically identified. R.T.L.

(429h) *Allechinostomum renale* n.sp. from the kidney of *Pelecanus erythrorhynchos* has 20 spines on the head crown and deeply lobed testes in the anterior half of the body. Yeh is of the opinion that the genus *Allechinostomum* is not a synonym of *Echinochasmus*. R.T.L.

(429i) *Serticeps buckleyi* n.sp. from under the horny layer of the gizzard of the eastern beautiful sunbird, *Nectarinia pulchella incidipectus*, in Uganda has two pairs of post-anal and eight pairs of pre-anal papillae and the spicules are thin, pointed and similar in shape. *S. osmanhilli* n.sp. from between the tunics of the gizzard of a yellow-winged sugar bird, *Cyanerpes cyaneus*, from Brazil also has two pairs of post-anal and eight pairs of pre-anal papillae, but the right spicule is short and stout while the left is thin and pointed. Both differ from *S. vulvoinflata* which has ten pairs of pre-anal papillae. Yeh agrees with Skryabin that there are two lateral lips, each sub-divided into three lobes, not six lips as described by Drasche. R.T.L.

(429j) Brown confirms Rothschild's observations that *Cercaria doricha* from *Turritella communis* is capable of swimming to a height of about ten feet in a column of water. He describes the positions taken up while swimming and resting, and gives graphs showing the decrease in the total time spent swimming during an hour throughout its active life and a decrease with age in the average duration of a single swim during one hour. The ability of *C. doricha* to maintain itself in the vertical range frequented by its normal fish host *Chupea sprastus* would rapidly decrease with age. R.T.L.

(429k) Two hundred and fifty four carcasses of thirteen species of small mammals collected in west Wales, Shropshire and Kent contained four trematodes, eleven adult and two larval cestodes, fourteen nematodes and one acanthocephalan. The host, parasite incidence and localities are tabulated. Immature adults of *Echinorhynchus rosai* found encysted in the liver and mesentery of *Erinaceus europaeus* in Kent are redescribed and illustrated. R.T.L.

(429l) *Cryptocotyle lingua*, *Schistocephalus solidus* and two new species were present in two otters killed near Edinburgh. *Plagiorchis* (*Multiglandularis*) *lutrae* n.sp. is the first species of this genus to be reported from the otter. It differs from *P. massino* recorded from dogs and cats in the smaller size of the body and of the eggs, the presence of a short prepharynx, the range of the vitelline follicles which reach the level of the oral sucker and the shape of the body which is wide anteriorly and tapers posteriorly. It differs from *P. (M.) muris* in these characters and, in addition, its ovary is rounded and the same size as or slightly larger than the ventral sucker. It also differs from *P. microti* which in Fahmy's opinion does not belong to the subgenus *Multiglandularis*. *Dibothriocephalus medius* n.sp. is without a neck and is, accordingly, differentiated by Fahmy from *D. trinitatis* and *D. minus*. The single specimen found measured 124.5 cm. in length and its holdfast is small, finger-like and has indistinct bothridia. The genital aperture is ventral. There are 9-11 loops of the uterus on each side, reaching the level of the genital aperture. The eggs are ovoid and measure 0.051-0.053 mm. × 0.034-0.036 mm. and have a small spine at one pole. No species of *Dibothriocephalus* has been reported hitherto in this host. Fahmy makes the suggestion that the plerocercoids of trout and other fish in British lakes and reservoirs may be those of this new species and may be spread by the otter. This is the second time *Schistocephalus solidus* has been reported in the otter and the first time it has been observed in this host in Britain. R.T.L.

(429m) As reports from hill farmers on the effect of dosing hill lambs in Scotland have been contradictory, a detailed investigation of faecal samples from many farms throughout Scotland was made by the authors during the summers of 1946 to 1949. These showed that after the end of June infections of pathogenic significance occur in a considerable percentage of Scottish hill lambs but that heavy infections do not occur until August on the west coast. The first cause of high worm egg counts was due to *Ostertagia* followed in August by *Trichostrongylus* spp., then by *Haemonchus contortus* and *Chabertia ovina* and lastly by *Bunostomum trigonocephalum*. In a few districts *Nematodirus* spp. may become of pathogenic importance in June and July. R.T.L.

430—Journal of the Indian Medical Association.

- a. CHATTERJI, K. C., 1954.—“Adult *Filaria (bancrofti)* in the anterior chamber of human eye.” 24 (4), 146–147.

431—Journal of Infectious Diseases.

- a. LEWERT, R. M. & LEE, C. L., 1954.—“Studies on the passage of helminth larvae through host tissues. I. Histochemical studies on the extracellular changes caused by penetrating larvae. II. Enzymatic activity of larvae *in vitro* and *in vivo*.” 95 (1), 13–51.
- b. OLIVER-GONZÁLEZ, J., 1954.—“Anti-egg precipitins in the serum of humans infected with *Schistosoma mansoni*.” 95 (1), 86–91.
- c. MOCHIZUKI, H., TOMIMURA, T. & OKA, T., 1954.—“Cerebrospinal nematodiasis as a provoking factor in Japanese B encephalitis: an experimental approach.” 95 (3), 260–266.

(431a) In a paper divided into two sections Lewert & Lee have made (i) histochemical studies on the extracellular changes caused by helminth larvae penetrating through the tissues of their hosts and (ii) studies on the enzymatic activity of larvae *in vitro* and *in vivo*. The techniques involved are described in detail and the results are illustrated by photomicrographs. The authors summarize the results as follows: “Histochemical studies have been made of host tissues being traversed by infective helminth larvae, with particular emphasis on the condition of the extracellular glycoprotein of the dermis. The larvae studied include those of *Schistosoma mansoni*, *Schistosoma douthitti*, *Strongyloides simiae*, *Strongyloides ratti*, *Ancylostoma caninum*, *Nippostrongylus muris* and *Trichinella spiralis*. The results were as follows: 1. Profound alterations of the extracellular glycoprotein-containing material of the skin, notably the basement membrane and ground substance, accompany penetration by the schistosomes, *Strongyloides* and *Ancylostoma*. Related changes are noted in tissues containing schistome eggs and in the snail being penetrated by miracidia. 2. The larval secretions cause a disappearance of the basement membrane at the site of penetration, formation of water-soluble glycoprotein in the dermal ground substance and an increase in free water in the ground substance. 3. Helminth penetration causes less alteration of acellular substance in aged rats than in young rats and is correspondingly inhibited. It is of interest that in the old animals, the basement membrane is thicker and is presumably more highly polymerized, as is the ground substance. 4. In young hypophysectomized animals, there is also a reduction in the degree of glycoprotein alteration with penetration, again correlated with inhibition of penetration. It is considered significant that these animals, like aged rats, have thicker basement membranes and more highly polymerized basement membranes and ground substance. 5. Penetration of the skin is inhibited to various degrees in immune animals and in cortisone-treated animals. 6. Intravenous antihistamines have no effect on the rate of penetration or on the glycoprotein changes observed histochemically. 7. Skin penetration by *N. muris* is not accompanied by the extensive changes in glycoprotein found with the other skin-penetrating forms studied. Its activity does cause an increase in the free water of the ground substance. 8. Penetration of tissues by *T. spiralis* is also unaccompanied by immediate changes in host glycoprotein of the type described for other species. However, progressive changes in the glycoprotein capsule that forms about the larvae in muscle are described. 9. Enzymatic studies of the larvae listed reveal a correlation between the presence of a collagenase-like activity and the ability to cause changes in the glycoprotein of the host. The larvae of *S. mansoni*,

S. douthitti, *S. simiae*, *S. ratti* and *A. caninum* possess this enzyme or enzyme complex which is capable of releasing dye from azocoll and is also active against a gelatin substrate. Collagenase is not present in larvae of *N. muris*, *T. spiralis* and *Rhabditis pellio* nor in the plagiophilid and strigeid cercariae tested. 10. It is the conclusion of the authors that the mechanism of penetration of those parasites which cause changes in the basement membrane and ground substance of the host skin is related to the production of a collagenase-like enzyme. Alterations of the states of organization of the hosts' glycoprotein are reflected in changes in the ability of the parasites to penetrate".

D.L.H.R.

(431b) Oliver-González found that when eggs of *Schistosoma mansoni* were incubated in serum from humans or monkeys infected with the disease, or from artificially immunized rabbits a precipitate appeared contiguous with the edge of the egg-shell, in the form of small globules. These globules resembled those formed around the orifices of trichina and ascaris larvae incubated in immune serum. Eggs showing the greatest amount of precipitate were those which apparently were least affected by the host and contained a well preserved embryo suggesting that the antigenic substance is present within the egg probably as secretions or excretions from the miracidia or fluid bathing the ciliated embryo. Treatment of the sera with lyophilized cercariae and adults or with living adults had no measurable effect on the anti-egg antibody, but treatment of the sera with lyophilized or living eggs produced remarkable reduction in effect on the eggs. No precipitate was formed around eggs incubated in sera from uninfected persons or around the eggs of *Ascaris*, hookworm, *Trichuris* or *Fasciola hepatica* when these were incubated in the serum from the individuals infected with *Schistosoma mansoni*. The possibility of using test antigens prepared from egg material for immunological tests which may be of diagnostic and prognostic value is mentioned.

D.L.H.R.

(431c) The virus of Japanese B encephalitis has relatively little pathogenic effect when injected subcutaneously into mice. But when injected three or four days after the mice had been fed with *Toxocara canis* eggs by stomach tube the larvae migrating to the brain were effective in initiating conditions which facilitated the localization of the virus in the nervous system. The larvae apparently do not carry the virus but probably act by destroying the blood-brain barrier prior to the intracerebral migration of the larvae. These experimental results are held to give some support to the recent speculations on the potential adjuvant action of helminthic and virus infections, especially in cerebrospinal nematodiasis and Japanese B encephalitis in animals.

R.T.L.

432—Journal of Parasitology.

- a. GOLDSBY, A. I. & EVELETH, D. F., 1954.—"Internal parasites in North Dakota antelope." 40 (6), 637-648.
- b. MARGOLIS, L. & BUTLER, T. H., 1954.—"An unusual and heavy infection of a prawn, *Pandalus borealis* Krøyer, by a nematode, *Contracaecum* sp." 40 (6), 649-655.
- c. RAUSCH, R. & SCHILLER, E. L., 1954.—"Studies on the helminth fauna of Alaska. XXIV. *Echinococcus sibiricensis* n.sp., from St. Lawrence Island." 40 (6), 659-662.
- d. ROTHMAN, A., 1954.—"A new species of *Strongyluris* (Nematoda) from a southern California lizard." 40 (6), 673-674.
- e. CABLE, R. M. & HOPP, W. B., 1954.—"Acanthocephalan parasites of the genus *Neoechinorhynchus* in North American turtles with the descriptions of two new species." 40 (6), 674-680.
- f. OGREN, R. E., 1954.—"A lungworm, *Angiostrongylus blarini*, n.sp., from the short-tailed shrew, with observations on the histopathology and life cycle." 40 (6), 681-685.
- g. BOYD, E. M. & HUSTON, E. J., 1954.—"The distribution, longevity and sex ratio of *Trichinella spiralis* in hamsters following an initial infection." 40 (6), 686-690.
- h. ROBINSON, Jr., E. J., 1954.—"Additional data on filarial worm infections in vertebrates of southwestern Georgia." 40 (6), 690-691.
- i. MAHON, J., 1954.—"Occurrence of larvae of *Taenia taeniaeformis* (Batsch, 1786) in the American rabbit, *Lepus americanus*." 40 (6), 698.
- j. TROMBA, F. G., 1954.—"A technique for hatching miracidia in dilute formalin." 40 (6), 698.
- k. GUSTAFSON, P. V., 1954.—"Some observations on the lungworm of the cat." 40 (6), 698-699.

- l. NIEDERMAYER, A. J., 1954.—"Creeping eruption acquired in Indiana." 40 (6), 699.
- m. DRUDGE, J. H. & LELAND, Jr., S. E., 1954.—"An anomalous *Anoplocephala perfoliata*, a tapeworm of the horse." 40 (6), 700-701.
- n. MATHIES, A. W., 1954.—"The influence of sex on mouse pinworm infection." 40 (6), 702
- o. GILFORD, J. H., 1954.—"A survey of muskrat helminths in Illinois." 40 (6), 702-703.
- p. MCCARTHY, D., REINERTSON, J. W. & THOMPSON, P. E., 1954.—"A convenient device for exposing mice to *Schistosoma mansoni* by tail immersion." 40 (6), 704.
- q. FINCK, P. A. & HUNNINEN, A. V., 1954.—"Two human cases infected with *Echinococcus* cysts, indigenous from the United States." 40 (6), 706.

(432a) From an examination of the viscera of 95 south-western North Dakota antelope, *Antilocapra americana*, it appears that abomasal worms were more common in those from ranges grazed by sheep but intestinal worms were more frequent in those from ranges grazed by cattle. The occurrence of *Pseudostertagia bullosa*, *Ostertagia bisonis*, *Nematodirus longispiculata antilocaprae*, *Cooperia bisonis* and *Capillaria brevipes* is reported in North Dakota for the first time. *A. americana* is a new host for *Ostertagia ostertagi*, *O. bisonis*, *Cooperia oncophora*, *Capillaria brevipes*, *Moniezia expansa* and *M. benedeni*. R.T.L.

(432b) Over 100 individuals of a species of *Contracaecum*, closely related to and possibly identical with *C. aduncum*, were present in a prawn, *Pandalus borealis*, at Vancouver. Some protruded from under the carapace, others were found in the haemocoel and the abdominal musculature. The worms were identical with *C. magnum* found in fishes in coastal waters. *C. magnum* is believed to be a synonym of *C. aduncum*. R.T.L.

(432c) *Echinococcus sibiricensis* n.sp. has fewer testes with a more restricted distribution than in *E. granulosus* and the average size of the hooks is smaller, but the real differentiation is based on the form for which the hosts on St. Lawrence Island are the field vole and the red-backed vole. The larval form closely resembles the alveolar larva of *Echinococcus* which sometimes occurs in man in southern Europe and Russia. R.T.L.

(432d) *Strongyluris readi* n.sp., from the intestine of *Uta stansburiana stejnegeri* in California, is very similar to *S. media* but has a shorter body, a shorter pharynx and a smaller pharyngeal bulb. The spicules (0.56 mm.) are shorter and the uterine ova (0.53 mm. × 0.40 mm.) smaller. *S. davisi* is also similar but has larger ova, larger spicules and a longer body. R.T.L.

(432e) *Neoechinorhynchus emydis* (Leidy, 1852) is common in North American turtles. After critical examination of the literature on this species two new species have been described, chiefly on the size and appearance of the shelled embryos. In *N. pseudemydis* n.sp. from *Pseudemys scripta elegans* in Indiana, U.S.A., the eggs measure 0.042-0.051 mm. × 0.018-0.022 mm. Moreover the posterior end of the female is cleft and terminates in a pair of lateral lobes. In *N. chrysemydis* n.sp. from *Chrysemys picta marginata* in Indiana, the eggs measure 0.055-0.060 mm. × 0.019-0.022 mm., the posterior end of the female is rounded and has a pair of lateral papillae. In *N. pseudemydis* the anterior testis is smaller than the posterior whereas in *N. chrysemydis* it is larger than the posterior even in young males. R.T.L.

(432f) *Angiostrongylus blarini* n.sp. from cysts in the lungs of the short-tailed shrew, *Blarina brevicauda*, differs from the seven other species in that the adults are small, the male being only 3-4 mm. in length, the right and left dorsal rays are fused to form an inverted T-shaped appendage, the lateral rays are fused, the slender and slightly curved spicules measure only 0.066-0.099 mm. in length. Third-stage larvae found in field specimens of the slug *Deroceras gracile*, thought to be the infective stage of this or a closely allied species, when fed to mice gave negative results. R.T.L.

(432g) When golden hamsters were fed with encysted *Trichinella spiralis*, many of the larvae had reached the small intestine in an hour and had penetrated the mucosa by the end of the second hour. The maximum number of adults was recovered during the first day. A reduced number of adults survived to the sixth day and 0% to 1.2% were present on the 15th day. The ratio of males to females was 1:1.8. R.T.L.

(432h) In an addendum to a previous report [for abstract see Helm. Abs., 23, No. 31m], Robinson lists the reptilian, avian and mamalian hosts with microfilariae among the 830 animals collected in Baker County, Georgia. The only infected hosts additional to those in the earlier report are *Corvus ossifragus* and *Turdus migratorius*. Species previously reported as uninfected and now recorded as infected are *Dendroica pinus*, *Procyon lotor* and *Sylvilagus palustris*. All the microfilariae belonged to Dipetalonematidae. Relatively few adults were found.

R.T.L.

(432i) The occurrence in North America of *Taenia taeniaeformis* cysticerci in *Lepus americanus* is recorded for the first time.

R.T.L.

(432j) The eggs of *Urotrema scabridum* do not hatch in water or 0.85% saline at room temperature, or on exposure to room temperature after storage in the refrigerator up to ten days. When living adults were macerated in 3% formalin, hatching occurred in one to two minutes but the miracidia were immediately killed. Maximum hatching and survival resulted when the eggs were dissected from the uterus in a small drop of 0.075% formalin in 0.85% saline. The hatching began in about one minute but no miracidium lived longer than 55 seconds.

(432k) The occurrence of *Aelurostrongylus abstrusus* in cats is reported from the Seattle area, U.S.A., for the first time.

R.T.L.

(432l) The occurrence of creeping eruption in Indiana is recorded for the first time. The patient apparently acquired the infection when cleaning the basement of a grocery store which had been flooded by a backed-up sewer.

R.T.L.

(432m) A triradiate *Anoplocephala perfoliata* from a horse in Kentucky is illustrated. Two of each of the six suckers and six lappets on the scolex were so arranged that the position of each corresponded to that of each of the three branches of the strobila. This is the first instance of this kind to be reported from the western hemisphere.

R.T.L.

(432n) Carefully controlled experiments indicated that in mice infected with *Aspicularis tetraptera* the resulting worm burdens in the males were twice as great as in the females. This may account for the irregular size of infections in groups of mice of mixed sex.

R.T.L.

(432o) Examinations of 250 *Ondatra zibethica* in Illinois gave nine species of trematodes, three species of nematodes and two species of cestodes. The incidence of each is tabulated. The most frequent parasite was *Echinostomum revolutum* which occurred in 32.4%.

R.T.L.

(432p) A modification of Luttermoser's method for exposing the tails of mice to infection with *Schistosoma mansoni* cercariae is illustrated. The mice are immobilized by inserting them head first into glass holding tubes using a notched cork to permit the extrusion of the tail. A $\frac{1}{4}$ in. hole at the end of the tube provides ventilation. The tubes are inserted into counter-sunk holes in a stand with the tails of the mice extending into the cercarial suspension.

R.T.L.

433—Journal of Pathology and Bacteriology.

a. WALSHE, J. M., 1954.—"Echinococcosis alveolaris of the liver." 67 (2), 371-377.

b. LUMB, G., 1954.—"Peritoneal pseudo-tubercles in schistosomiasis." 67 (2), 612-614.

(433b) Lumb reports finding *Schistosoma mansoni* eggs in numerous miliary nodules scattered over the peritoneum in a patient from Africa who was operated upon for acute abdominal pain diagnosed as appendicitis. No schistosome eggs were found in the faeces.

R.T.L.

434—Journal of Pediatrics.

a. BROWN, H. W., 1954.—"The treatment of *Ascaris lumbricoides* infections with piperazine." 45 (4), 419-424.

(434a) When 5 c.c. of piperazine citrate orange-flavoured syrup (each c.c. of which contained 100 mg. equivalent of piperazine hexahydrate) was administered twice daily, at

8.30 a.m. and 3.30 p.m., to 51 schoolchildren with *Ascaris* infection, 46 were cured in two to five days. Many of the children reported the passing also of live *Ascaris* during treatment. R.T.L.

435—Journal of Pharmacy and Pharmacology. London.

- a. DAVIES, M. T., FORREST, J., HARTLEY, F. & PETROW, V., 1954.—“Piperazine adipate: a new anthelmintic agent. Part I. Physicochemical properties.” 6 (10), 707-710.
- b. CROSS, B. G., DAVID, A. & VALLANCE, D. K., 1954.—“Piperazine adipate: a new anthelmintic agent. Part II. Toxicological and pharmacological studies.” 6 (10), 711-717.
- c. SLOAN, J. E. N., KINGSBURY, P. A. & JOLLY, D. W., 1954.—“Preliminary trials with piperazine adipate as a veterinary anthelmintic.” 6 (10), 718-724.

(435b) Cross *et al.* have shown piperazine adipate to be only slightly toxic to rats and mice, the LD₅₀ of the pure compound administered orally being 7.9 gm. per kg. body-weight and 11.4 gm. per kg. respectively. The daily administration in food of 300 mg. per kg. for eight weeks to rats, and of 250 mg. per kg. subcutaneously on five days a week for five weeks to rabbits, produced no pathological changes in any of the animals; the only effects noted were local reactions at the sites of the injections which are attributed to the high concentration used. S.W.

(435c) Sloan *et al.* have tested the anthelmintic properties of piperazine adipate against ascarids, hookworms and tapeworms in dogs, ascarids in three cats, one lion and four lionesses, *Ascaris* and *Oesophagostomum* in pigs, *Parascaris*, *Oxyuris* and small strongyles in horses, ascarids in two zebras and *Ascaridia* in poultry. The drug was administered as a drench, by stomach tube, in gelatine capsules, as tablets or mixed with wet or dry food and was not unpalatable. No toxic symptoms were observed and no vomiting followed dosing. It was extremely effective against ascarids in all the animals, and showed considerable efficacy against oxyurids and small strongyles in horses and *Oesophagostomum* in pigs. There was some anthelmintic action against *Uncinaria stenocephala* but little against *Ancylostoma caninum*; there was no anthelmintic action on *Taenia hydatigena* or *Dipylidium caninum*. Details of dosage rates, of faecal egg-counts before and after dosing, and of post-mortem worm counts (where made) are given. S.W.

436—Journal of the Royal Army Veterinary Corps.

- a. BISHOP, H. W., 1954.—“Diagnosis of heartworm infection.” 25 (2), 47-49.

437—Journal of Tropical Medicine and Hygiene.

- a. BROWNE, S. G., 1954.—“Nematodosis of the central nervous system.” 57 (10), 229-233.

(437a) A review of the literature suggests that nematodiasis of the central nervous system, due to larvae of *Ascaris lumbricoides*, *Trichinella spiralis*, *Onchocerca volvulus*, *Loa loa*, *Dirofilaria immitis* and those of other helminths in domesticated and wild mammals, is probably of more frequent occurrence than is realized at present. Browne gives a detailed history of a nurse in the Belgian Congo who gave transient clinical evidence of involvement of the right cerebello-pontine angle. The lesion is attributed to an intracranial Calabar swelling or a localized oedema surrounding an adult *Loa loa*. R.T.L.

438—[Journal of Zoology. Peking.]

- a. HSU, P. J., 1954.—[A new trematode, *Chenia cheni* n.g., n.sp. (Hemiuridae) from gobiid fish.] 6 (1), 33-36. [In Chinese: English summary p. 36.] [Reprint.]

(438a) A new trematode, *Chenia cheni* n.g., n.sp., is described from the gut of *Elestris balia*, *E. potamophilia* and *Glossogobius* sp. from Canton, China. It is assigned to the subfamily Derogenetinae. *Chenia* differs from *Derogenes* and *Derogenoides* in that the vitellaria are in a single compact mass; the cirrus pouch envelopes the upper portion of the curved seminal vesicle and the whole mass of prostate glands; and the eggs are provided with two long filaments at one pole. L.S.Y.

439—Klinicheskaya Meditsina. Moscow.

- a. DEREVYANKO, I. M., 1954.—[Rare surgical forms of ascariasis.] 32 (4), 81–83. [In Russian.]

440—Kongelige Norske Videnskabers Selskabs Forhandlinger.

- a. ALLGÉN, C. A., 1954.—“Ueber eine bemerkenswerte neue Südsee-Art der Nematodengattung *Sabatieria* de Rouville, *S. heterospiculum* von Süd-Georgien.” Year 1953, 26 (2), 4–6.
 b. ALLGÉN, C. A., 1954.—“Ueber einen bemerkenswerten Fall von Wundheilung in der Oncholaimiden-Gattung *Viscosia* de Man.” Year 1953, 26 (3), 7–9.
 c. ALLGÉN, C. A., 1954.—“Ueber einige südliche *Desmodoren* (*Desmodora* de Man) mit bemerkenswerten Präanalpapillen (supplementären Hilfsorganen) bei den Männchen.” Year 1953, 26 (7), 22–27.
 d. ALLGÉN, C. A., 1954.—“Das Bipolaritätsproblem freilebender mariner Nematoden.” Year 1953, 26 (8), 28–35.
 e. ALLGÉN, C. A., 1954.—“Zur Synonymie der Gattung *Nuada* Southern 1914 mit der Gattung *Halalaimus* de Man 1888.” Year 1953, 26 (11), 43–47.
 f. ALLGÉN, C. A., 1954.—“Ueber eine ganz bemerkenswerte neue Art der Oxystomatiden-gattung *Trefusia* de Man, *T. axonolaimoides* n.sp. von Süd-Georgien.” Year 1953, 26 (12), 48–50.

(440a) Allgén describes *Sabatieria heterospiculum* n.sp., a marine nematode from South Georgia. The species is based on a single male specimen which is typical of the genus except that the spicules are of unequal length: the left is 50μ long and curved, the right 80μ long and bent only at the distal end.

M.T.F.

(440b) Allgén summarizes some published descriptions of nematodes which have shown evidence of bearing wounds which have healed. He describes and figures a specimen of *Viscosia glabra* having an atypical, rounded tail which he considers to be the result of a wound which has healed.

M.T.F.

(440c) From a study of numerous specimens in the collections of the Swedish South Polar Expedition of 1901–1903 Allgén considers that *Desmodora armata* Ditlevsen, 1930, described from a single male, is synonymous with *D. stateni* Allgén, 1928. The male has a pre-anal group of four conical rounded spines and a single short thick spine about one body-width in front of the group. There are also two rows of submedian hairs. *Desmodora parasitifera* Allgén, 1949 is also synonymized with *D. stateni*. Two other new species found in samples from the Falkland Islands are described: *Desmodora stateni aberrans* n.sp. has the male pre-anal papillae in two equally developed small groups, each consisting of one big one with a smaller rounded spine in front and another behind it: *D. reducta* n.sp. differs from *D. stateni* in having thinner, more sharply bent spicules and the pre-anal group of conical spines is replaced by a single spine resembling the anterior one but smaller. Specimens of *D. campbelli* Allgén, 1932 were found in which the number of pre-anal papillae in the male varied from the typical six, specimens having any number from five to nine.

M.T.F.

(440d) Allgén reviews the marine nematode fauna recorded from the antarctic and subantarctic regions comparing it with that from the arctic and northern seas and shows that a number of species are common to both. He deals in particular with ten species, namely, *Thoracostoma elegans* Ditlevsen, *T. coronatum* (Eberth), *Oxystomatina oxycaudatum* (Ditlevsen), *Dolicholaimus marioni* de Man, *Euchromadora loricata* (Steiner), *Chromadora mucrodonia* Steiner, *C. paramucrodonia* Allgén, *Diplopeltis longisetosus* Allgén, *Monhystera macquariensis* Allgén and *M. cuspidospiculum* Allgén.

M.T.F.

(440e) Comparing the genus *Halalaimus* de Man, 1888 with *Nuada* Southern, 1914, Allgén considers *Nuada* to be so close to *Halalaimus* as to be regarded as a subgenus. He describes *Halalaimus (Nuada) southerni* n.sp. from a single male from South Georgia: the general form and the purple colour of the body, the shape of the head, the heavily thickened cuticle (3μ) and the lack of lateral sense organs resemble Southern's genus. The spicules are heavy, short and straight. The terminal part of the tail is missing in the specimen described.

M.T.F.

(440f) Allgén describes *Trefusia axonolaimoides* n.sp., a marine nematode from South Georgia. It differs from *T. longicauda* de Man, which has no buccal cavity, in having a weakly developed buccal cavity resembling that in *Axonolaimus*. The single male is 2.17 mm. long and the head is rounded with four submedian bristles and four others at the level of the middle of the funnel-shaped buccal cavity. The lateral sense organs are oval and the oesophagus elongated and without a bulb. The long, filiform tail resembles that of *T. longicauda*. The spicules are heavy and bent, measuring 33 μ . M.T.F.

441—Laboratorio. Granada.

- a. GUEVARA POZO, D., 1954.—“Obtención de huevos y larvas de *Ascaris* en forma aséptica.” 17 (100), 311-315.

(441a) [This paper is reprinted from *Rev. ibér. Parasit.*, 1953, 13, 333-338. For abstract see *Helm. Abs.*, 22, No. 403g.]

442—Lancet.

- a. TALYZIN, F. F., 1954.—“The oxygen treatment of ascariasis.” Year 1954, 2 (6833), 314-315.
- b. WHITE, R. H. R., 1954.—“Ascariasis treated with piperazine hydrate.” Year 1954, 2 (6833), 315-316.
- c. LAURIE, W., 1954.—“Survey before service. Observations on relation between agriculture, parasite load, and nutrition on a tropical African island.” Year 1954, 2 (6842), 801-802.

(442a) Talyzin describes a method for treating ascariasis in man. After the patient has been given an enema, a duodenal sound is introduced into the stomach (preferably through the nose) and oxygen is passed into the stomach under slight pressure for 7-15 minutes, the total amount usually being 1-2 litres for an adult. Magnesium sulphate or another saline aperient is given after two hours. The dead ascarids are normally passed out in the stools on the second or third day after treatment. S.W.

(442b) White reports the successful treatment of three cases of ascariasis in children with piperazine hydrate. *Trichuris trichiura* was not affected by the drug. S.W.

(442c) A survey of the over-populated Ukara Island in Lake Victoria showed that 24% of the males over sixty years old had hydrocele, while the over-all incidence was only 8%; 2.7% of the males and 4% of the females had elephantiasis of the lower limbs. Single examinations of faeces gave hookworm 38%, *Ascaris* 36%, *Schistosoma mansoni* 36%, *Strongyloides stercoralis* 15%, *Trichuris* 52%, and tapeworm 4%; urinary schistosomiasis occurred in 2%. Nevertheless the Wakara inhabitants lead satisfying, hard-working lives of great happiness. This is attributed to their method of mixed farming. The conclusion is drawn that it is futile to use the results of parasite surveys as a measure of estimating the state of health of a population. R.T.L.

443—Landwirtschaftliches Jahrbuch der Schweiz.

- a. SAVARY, A., 1954.—“La maladie vermiculaire des betteraves sucrières en Suisse romande.” 68 (9), 949-958. [English, German and Italian summaries p. 958.]

(443a) The chief nematode parasite of sugar-beet in Switzerland is *Ditylenchus dipsaci*, but *Heterodera schachtii* is also present in certain areas. Savary gives an account of the distribution of eelworm disease of sugar-beet in the French parts of Switzerland. He has examined the yield and the sugar content of the crops from 20 fields bearing diseased and from 19 bearing healthy crops, and finds significant differences between diseased and healthy crops. The mean yield of sugar per ha. was 7,700 kg. for healthy crops and 5,400 kg. for diseased. Observations on crop rotations suggest that disease is more often present where two-year rotations are practised than where sugar-beet is grown only once in four or five years. M.T.F.

444—Lantmannen.

- a. GUSTAFSSON, H., 1954.—“Bekämpning av havrenematoden.” 38 (48), 1063–1064.

(444a) In field experiments carried out in Halland, Sweden, it has been shown that *Heterodera major* propagates rapidly in oats and summer wheat. The propagation is slower in barley than in other spring sown cereals. Resistant varieties of barley give a decreasing infestation in the soil. Autumn sown cereals have given a lower degree of propagation than oats—winter rye was the most resistant cereal. Treatment with chloropicrin or methyl bromide has given a good control during the first year.

S.B.

445—Meddelelser om Grønland.

- a. ALLGÉN, C. A., 1954.—“The Swedish Greenland-Expedition 1899. Freelifving marine nematodes from East Greenland and Jan Mayen.” 107 (6), 44 pp.
 b. ALLGÉN, C. A., 1954.—“On some Arctic freelifving moss-nematodes, collected by the Swedish Greenland-Expedition 1899.” 107 (6), 10 pp.

(445a) After a short historical review of the investigations of the Arctic marine nematode fauna in which so far 30 species have been recorded, Allgén gives an account of 29 species collected by the Swedish Greenland Expedition of 1899. The expedition's collection contained 210 marine nematodes belonging to 29 different species of which 17 are known and 12 are new. They are distributed among 21 genera of which two are new. The new species are *Leptosomatum grönlandicum* n.sp., *Thoracostoma penduli* n.sp., *T. brachylobatum* n.sp., *Micoletzkyia parelegans* n.sp., *Enchelidiella pellucida* n.g., n.sp., *Pendulumia obtusicauda* n.g., n.sp., *Monoposthia arctica* n.sp., *Chromadora kingo-jacobsemi* n.sp., *Parasabatieria arctica* n.sp., *Bathylaimus jacobsemi* n.sp. and *Filipjeviella arctica* n.sp.; a single female of an unnamed and unidentified species of *Contracaecum* was also collected.

R.T.L.

(445b) Allgén gives systematic notes on nine known free-living nematodes from moss. A single female of *Dorylaimus obtusicaudatus* came from Jan Mayen. The others were collected in different parts of east Greenland.

R.T.L.

446—Médecine Tropicale.

- a. TOULANT, P. & BOITHIAS, R., 1954.—“Les lésions oculaires de l'onchocercose africaine.” 14 (2), 191–199.
 b. BOITHIAS, R., 1954.—“Incidence médico-militaire de l'onchocercose.” 14 (2), 200–203.

(446a) Toulant & Boithias have used the biomicroscope with a slit lamp and Bausch & Lomb camera in the study of the ocular lesions of onchocerciasis which are described at length.

R.T.L.

(446b) Boithias recommends that troops should not be stationed for long periods in regions known to be endemic centres of onchocerciasis and draws attention to the advisability of examining recruits from these regions before their enlistment. He instances cases of eye trouble in African soldiers due to previously unsuspected onchocerciasis. In his opinion the infection was not a sufficient reason for retiring them on pension.

R.T.L.

447—Mededelingen. Directeur van de Tuinbouw. 's-Gravenhage.

- a. BRUINSMA, F. & SEINHORST, J. W., 1954.—“Warmwaterbehandeling van sjalotten tegen aantasting door stengelaaltjes (*Ditylenchus dipsaci* (Kühn) Filipjev).” 17 (6), 437–446. [English summary p. 446.]
 b. BIJLOO, J. D., BRAVENBOER, L. & OOSTENBRINK, M., 1954.—“Grondontsmetting bij de tomatenteelt ter bestrijding van het aardappelcystenaaltje (*Heterodera rostochiensis* Woll.).” 17 (10), 804–810. [English summary p. 810.]

(447a) As a result of tests carried out for three successive years for the control of stem eelworm (*Ditylenchus dipsaci*) in shallots by warm-water treatment, Bruinsma & Seinhorst are able to state that a complete kill results from any of the following treatments: (i) 2 hr.

at 43.5°C. or 44°C., (ii) 1½ hr. at 45°C., (iii) 1 hr. at 46°C. No damage occurred and the yield showed some increase as compared with untreated nematode-free shallots. Downy mildew is also controlled. Autumn treatment is recommended to prevent losses during winter storage but the treatment may be carried out in the spring.

M.T.F.

(447b) Experiments on the chemical control of *Heterodera rostochiensis* in tomato houses have given satisfactory results with chloropicrin and D-D mixture. Doses of 100 c.c. per sq. m. have been followed by two good crops. Steam sterilization was also effective. Ethylene dibromide had practically no lethal effect. Para-nitrobenzylchloride had a fairly good nematocidal effect but very prolonged phytotoxicity and a rapid build up of nematodes followed its use.

M.T.F.

448—Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent.

- a. BRANDE, J. VAN DEN, KIPS, R. H. & D'HERDE, J., 1954.—“Invloed van de vochtigheid bij de scheikundige bestrijding van het aardappelpycstenaaltje *Heterodera rostochiensis* Woll.” 19 (3), 353-372. [English, French & German summaries pp. 368-372.]
- b. SCHUURMANS STEKHOVEN, J. H. & MAWSON, P. M., 1954.—“Twee nieuwe methodes voor het onderzoek *in vitro* van de werking van nematociden.” 19 (3), 373-376.
- c. OOSTENBRINK, M., 1954.—“Een doelmatige methode voor het toetsen van aaltjesbestrijdingsmiddelen in grond met *Hoploiaimus uniformis* als proefdier.” 19 (3), 377-408. [English, French & German summaries pp. 392-402.]

(448a) Four nematocides tested against potato-root eelworm are placed in the following order of efficacy: chlorobromopropene, chloropicrin, D-D mixture and ethylene dibromide. The humidity of the cysts was of great importance but not the duration of soaking or the presence of an emulsifying agent. The effect of D-D was removed from cysts soaked immediately after treatment. No nematocidal action was shown in air-dry (0.7% water) sandy soil, even close to the injection point. In saturated (18.2% water) soil nematocidal action was poor. The best results were obtained at moisture contents between 4.2% and 11.8%. The influence of soil moisture both on the cysts and on the diffusion of gases through the soil must be considered in relation to fumigation. For a 100% kill in the top layers of soil without the use of a water seal or cover 8 litres of fumigant per acre at 20°C. are needed. At temperatures from -8°C. to +8°C. D-D was less effective than at 20°C.

M.T.F.

(448b) The authors describe two methods for the laboratory testing of nematocides. In the first, crystals of the chemical to be tested are placed in a conical bag of bolting-gauze the open end of which is fastened with paraffin wax to the glass cover of a dish 2 cm. deep and 2 cm. in diameter in which are the nematodes in 1.5 cm. of water. The lid with the bag containing the chemical is then inverted so that the conical end of the bag hangs down into the water but does not touch the bottom. In the second, quicker method, a coverslip is spread with warm wax and is then inverted over the crystals of the chemical to be tested strewn on a sheet of paper. The crystals stick to the coverslip which is then carefully floated on a watch glass of water containing the nematodes which can be observed under a binocular microscope.

M.T.F.

(448c) Oostenbrink describes a method for testing all types of soil nematocides, which he claims is simple and will produce results in 2 days: the method works in soil, conditions can be varied or kept constant and the phytotoxicity can be tested. Pots of soil with a natural population of *Hoploiaimus uniformis* are used. The chemical can be injected, mixed in or poured on. After 24 hours the nematodes are washed from the soil in a special apparatus, then placed in water on a cotton-wool filter through which the living ones move and can be counted the next day. Oostenbrink gives the results of experiments which justify the use of this technique when testing D-D mixture, cystogon and formalin. He describes the apparatus used for extracting the nematodes from soil, referring to it as a new apparatus combining details from the “modified Fenwick can” and Ahlberg's cyst flotation funnel.

M.T.F.

449—Medical Clinics of North America.

- a. LOUGHLIN, E. H. & MULLIN, W. G., 1954.—“Hetrazan in ascariasis.” **38** (2), 591-597.

(449a) A cherry-coloured syrup containing 30 mg. of the dihydrogen citrate salt of hetrazan, when administered once daily on four successive days at the rate of 13 mg. per kg. body-weight, expelled 91% to 94% of *Ascaris lumbricoides*. Only one patient had toxic symptoms of moderate vertigo, mild depression and low appetite. No treatment was necessary before or after dosing.

R.T.L.

450—Medical Journal of Malaya.

- a. HARRISON, J. L., AUDY, J. R. & TRAUB, R., 1954.—“Further tests of repellants and poisons against leeches.” **9** (1), 61-71.

(450a) Protective footwear, ointments and poisons were tested against *Hirudinaria manillensis* and *Haemadipsa zeylanica* and the results tabulated. Socks impregnated with M-1960 showed only slight effect against aquatic leeches but proved effective against land leeches. Three ointments in a “Santocel C” base, dimethyl phthalate, ethyl- β -phenyl hydracrylate and a mixture of dimethyl phthalate, Repellent 612 (2-ethylhexanediol) and dimethyl carbate, gave no protection against aquatic leeches, while against land leeches the protective effect wore off after about one hour. The insecticides Lindane, Aldrin and Dieldrin were ineffective in field tests in leech-infested areas when used in the concentrations recommended against insects.

G.I.P.

451—Medicina. Revista Mexicana.

- a. MORALES CISNEROS, A., 1954.—“Dietilcarbamazina en la oncocercosis. Notas sobre su dosificación en los tratamientos de campo.” **34** (706), 377-383.

(451a) The efficiency of diethylcarbamazine against onchocerciasis was tested on 304 people, each with at least five microfilariae per biopsy, in Escuintla, Pueblo Nuevo and Huixtla in Mexico. In one group of the patients nodules had been excised before and in the other after treatment. Both groups received the drug at the rate of 5 mg. or 10 mg. per kg. body-weight daily for five or ten days. The percentage of infections that became negative after treatment did not vary significantly among members of the same group even when dosages and the number of days of treatment were different. But in the first group about 65%-70% became negative whereas only about 44% were cured in the second group. Morales Cisneros recommends a five-day course of treatment in preference to one of ten days as the patients can be induced to attend with more certainty.

M.MCK.

452—Medicina Colonial. Madrid.

- a. BOBO MORILLO, T. & VOS SAUS, R., 1954.—“El quiste hídático (hidatidosis) y su diagnóstico por el laboratorio.” **24** (3), 231-248.
b. RODHAIN, J., 1954.—“La patología de las filariosis humanas examinada a la luz de los recientes progresos terapéuticos.” **24** (3), 262-278.

(452b) [This is a translation of a paper published by the author in *Acta trop.*, Basel, 1953, 10, 194-208. For abstract see Helm. Abs., 22, No. 290a.]

453—Medicina Española.

- a. SANCHIS BAYARRI, V. & MENEU MONLEÓN, A., 1954.—“Contribución al diagnóstico parasitológico de los quistes hídáticos pulmonares.” **31** (180), 161-164.

454—Medizinische Klinik.

- a. BOGNER, W., 1954.—“Phenothiazinvergiftung durch Wurmschokolade im Kindesalter.” 49 (20), 819–821.
- b. FRIEDRICH, E., 1954.—“Innenkörperanämie nach phenothiazinhaltigen Wurmmitteln.” 49 (31), 1222–1223.

(454a) Bogner cites an instance of poisoning by phenothiazine from “worm chocolate”, and draws attention to the need of medical supervision in its administration to children. R.T.L.

(454b) Friedrich describes two cases of severe toxic haemolytic anaemia after administration of “Helmetina worm chocolate” (containing phenothiazine). Both recovered. Since these cases occurred the manufacturers are said to have reduced the phenothiazine content of the chocolate. A.E.F.

455—Mémoires de l'Académie de Chirurgie. Paris.

- a. CASILE, M., 1954.—“Péritonite aiguë chyléuse non traumatique chez un filarien.” 80 (8/9), 294–298.

456—Mémoires de l'Université de Neuchâtel.

- a. BAER, J. G., 1954.—“Revision taxinomique et étude biologique des cestodes de la famille des Tetrabothriidae, parasites d'oiseaux de haute mer et de mammifères marins.” Série in-4°, 1, 121 pp.

(456a) For this revision of the Tetrabothriidae, Baer has re-examined the types of over 70 species and as a result reduces the valid genera to four and the valid species to 40 for which he provides a key and a host list. *Anophryocephalus* and *Chaetophallus* are synonyms of *Tetrabothrius*. *Paratetrabothrius* is a composite genus comprising *Tetrabothrius sensu stricto* and *Valipora*. *T. hoyeri* of Szpotanska is considered to be a nomen nudum as it is a composite of *T. drygalskii* and *T. sulae*. *T. wilsoni* is a synonym of *T. affinis*. *T. perfidus*, *T. arcticus* and *T. rostratula* are synonyms of *T. immerinus*. *T. delphini*, *T. dalli* and *Trigonocotyle lintoni* are synonyms of *Tetrabothrius forsteri* (Kreff). *T. forsteri* of Baer is renamed *T. innominatus* nom.nov. and *Trigonocotyle monticelli* is renamed *T. globicephalae* nom.nov. Baer suggests that the scolex of *Priapocephalus* may be a pseudoscolex, the scolex of the young tapeworm having become embedded and lost in the host's intestinal mucosa. If it should be found that the original scolex has two instead of four suckers, the genus would have to be removed from the Tetrabothriidae to the Pseudophyllidea. Baer believes that the cyclophyllidians arose from among the Ichthyotaenidea (nom.nov. for *Proteocephala* Wardle & McLeod, *nec* Blainville), which are parasites of fresh-water vertebrates and in which the scolex has four suckers. As this order represents a divergent branch of the Tetracyllidea which are parasites of selachians, there could not be any relationship between these two and the tetrabothriids. For this reason he creates a new order, Tetrabothridea n.ordo, attached to the Tetracyllidea.

R.T.L.

457—Minerva Chirurgica. Turin.

- a. JORDAN, P., 1954.—“Equinococosis múltiple de localización preferente epiplóica.” 9 (10), 448–452. [French & Italian summaries p. 452.]
- b. GALLART-ESQUERDO, A., RECODER CLAVELL, L. & BORRÁS MOLERA, J., 1954.—“Equinococosis secundaria del peritoneo por rotura de un quiste hidatídico del hígado.” 9 (10), 461–463. [French & Italian summaries p. 463.]

458—Minerva Urologica.

- a. SESIA, G., 1954.—“Un caso di cisti da echinococco del rene.” 6 (1), 21–23.

459—Mitteilungen für die Schweizerische Landwirtschaft.

- a. GRAF, A., 1954.—“Nematodenkrankheiten und Nematodenforschung in Holland.” 2 (8), 137-143.

(459a) Graf gives a brief account of the investigations on plant-parasitic nematodes being carried out in Holland and compares the situation there with that in Switzerland. The problems are different in Switzerland and there is comparatively little nematological research. It is suggested that more investigations should be undertaken.

M.T.F.

460—Mosquito News.

- a. JENKINS, D. W. & WEST, A. S., 1954.—“Mermithid nematode parasites in mosquitoes.” 14 (3), 138-143.

(460a) In the Northwest Territories of Canada mermithids were frequently present in larvae of *Aedes communis* and occasionally in *A. nigripes* at Churchill, and occasionally in *A. nearcticus* at Coral Harbor, Southampton Island. In two pools at Churchill up to 100% of the late developing larvae of *A. communis* were infected and died. Over 25 species of mosquitoes have been recorded as hosts. These are listed with their localities and relevant bibliographical references.

R.T.L.

461—Münchener Medizinische Wochenschrift.

- a. GAHLEN, W. & GILLMANN, H., 1954.—“Melkersson-Rosenthal-Syndrom bei Filariasis.” 96 (8), 189-191.
b. KÖRVER, H., 1954.—“Wurmschokolade—ein Wolf im Schafspelz.” 96 (15), 409-410.

(461a) Gahlen & Gillmann describe from Düsseldorf a case of *Wuchereria bancrofti* infection in a 26-year-old nurse who in 1946 had spent some weeks in Tangier and Casablanca. She exhibited the classic symptoms of Melkersson-Rosenthal syndrome, i.e. transitory facial paralysis, chronic swelling of the lips and furrowed tongue.

A.E.F.

462—Nachrichtenblatt des Deutschen Pflanzenschutzdienstes. Stuttgart.

- a. MARCUS, O., 1954.—“Deformationen an Augenstecklingen von Kartoffeln durch Befall mit Stengelälchen.” 6 (7), 108-109.

(462a) The leaf and shoot deformation of potato caused by *Ditylenchus dipsaci* is described and figured. Almost 100% of “eyeshoots” grown during the winter of 1952 to 1953 in the green-house were infected. In the field very little infestation was found.

J.B.G.

463—Nature. London.

- a. DUNN, D. R. & WHITE, E. G., 1954.—“Lungworms (*Metastrongylus* spp.) in pigs, and their development in the guinea pig.” [Correspondence.] 174 (4443), 1193-1194.

(463a) Dunn & White record the most important results of work during two years on the incidence of *Metastrongylus apri* in pigs, the occurrence of eggs in the faeces and the development of the lungworms in the earthworm. [A short note on the first year's work appeared in *Trans. Roy. Soc. trop. Med. Hyg.*, 48, 9-10, for abstract see *Helm. Abs.*, 23, No. 52k.] Lungworms were found in 44.2% of the batches of pigs sent from north-west Britain to a bacon factory. The incidence was as high in other areas. Many naturally infected pigs had only light infections and the parasites were found in the finest bronchi. Examination of faeces at first showed no lungworm eggs. This was due to the failure of saturated sodium chloride (specific gravity 1.20) to float the eggs after centrifuging. Magnesium sulphate (specific gravity 1.285) proved 20-200 times as efficient. Cultures of various species of earthworm were established and a number of species infected with *M. apri*. Guinea-pigs were infected with third-stage larvae by mouth, the infection rate being 80%-100%. Lungworm eggs found in guinea-pig faeces were identical with those from the pig. The production of

fertile eggs from an experimentally infected guinea-pig is reported for the first time. Attempts are being made to adapt the lungworms to the guinea-pig to give 100% infection regularly. The work of Porter, showing that basophilia preceded for a short time by eosinophilia is a feature of infection, is confirmed. Reinfection gave a recurrence of this blood picture. D.M.

464—Nature. Paris.

- a. LAMY, L., 1954.—“Les bilharzioses et les moyens nouveaux de la lutte antibilharzienne.” No. 3236, pp. 472-476.

(464a) Lamy summarizes recent work on the control of schistosomiasis. He describes the methods by which the ostracod *Cypridopsis hartwigi* attacks and kills specimens of *Bulinus* and *Planorbis* in the aquarium and mentions that tests of its value as a biological control in the field are being carried out in French Equatorial Africa and the Antilles. R.T.L.

465—Nederlandsch Tijdschrift voor Geneeskunde.

- a. WEYTS, E. J., 1954.—“Oogverwikkelingen bij onchocercosis.” 98 (21), 1467-1468. [Discussion p. 1468.]

(465a) Weyts presents a classification of eye lesions in man caused by *Onchocerca volvulus*, based on his study of 180 cases in Congo natives and 15 in Europeans. Excision of nodules and treatment with hetrazan or suramin are recommended. Spraying the breeding places of the vector, *Simulium damnosum*, from aircraft has been found of value in controlling infection. A.E.F.

466—Nordisk Medicin.

- a. SILWER, J., 1954.—“Trichinos.” 52 (37), 1278-1279. [English summary p. 1279.]

(466a) Silwer briefly surveys the occurrences of trichinellosis in Sweden and reports on three cases, seen in 1953, in which a diagnosis by biopsy was confirmed by Roth's precipitin test. R.T.L.

467—North American Veterinarian.

- a. MADDY, K. T., 1954.—“Hepatic distomiasis of sheep and cattle in the United States.” 35 (9), 667-670.
b. MAGRANE, Jr., H. J., 1954.—“Treatment of canine trichuriasis with Whipcide.” 35 (10), 761-763.
c. BURROWS, R. B., 1954.—“*Ascaridia galli* in hen eggs.” 35 (12), 917.

(467a) In the U.S.A. *Dicrocoelium dendriticum* infection in cattle and sheep is at present limited to a part of New York State. *Fascioloides magna* is chiefly found in the Montana-Wyoming area. *Fasciola hepatica* is common in sheep and cattle in the Gulf and Pacific States. The results of post-mortem examination of 24,724 California cattle and calves at Los Angeles slaughterhouses during 1950 and 1951 are tabulated. The over-all average number of infected carcasses was 12.14%. R.T.L.

(467b) A new tablet containing phthalofyne (3-methyl-1-pentyn-3-yl sodium phthalate) when given at the dose rate of 250 mg. per kg. body-weight to 29 dogs, which had been fasted for about 12 hours, removed all *Trichuris vulpis* from 26 at the first treatment. After a second treatment all were negative. R.T.L.

468—Northwest Medicine.

- a. FEY, L. D. & MILLS, M. A., 1954.—“Fulminating trichinosis with myocarditis.” 53 (7), 701-706.

(468a) In a fulminating case of trichinellosis the heart became greatly enlarged during the invasive stage and an electro-cardiogram revealed bundle branch block. At post-mortem

encysted trichinae were easily found in the skeletal muscles. There were areas of extravasated red cells in the supporting stroma of the myocardium, small zones of myofibrosis replacing small groups of muscle bundles, particularly near capillary vessels, and degeneration; but no larvae were seen.

R.T.L.

469—Notiziario sulle Malattie delle Piante. Milan.

- a. BELLONI, V., 1954.—“Comparsa in Italia di una anguillulosi del frumento e prove di lotta.” No. 27, pp. 3-6.

(469a) Belloni describes damage to wheat apparently caused by *Ditylenchus dipsaci*, sometimes accompanied by *Fusarium dymyrum*. The disease is serious in the province of Varese. Trials were carried out in an infested field in which the varieties Mara and Freccia were badly affected while Funo, S.1 and R.37 were resistant. Part of the diseased Mara was sprayed with 1% Systox but no conclusive results were obtained as both treated and untreated areas subsequently recovered to some extent. It is recommended that diseased patches be ploughed in and the ground disinfected with 2% formalin at 20 litres per square metre. M.T.F.

470—Novedades Científicas. Contribuciones Ocasionales del Museo de Historia Natural La Salle, Caracas. Serie Zoológica.

- a. DÍAZ UNGRÍA, C., 1954.—“Nota previa sobre un foco filariano entre los indios uiniquinas del Delta del Orinoco.” No. 15, 4 pp.

(470a) In 85 peripheral blood smears taken from Uiniquina Indians of all ages in the Orinoco Delta, Venezuela, 13 presented simple or double filarial infections of *Mansonella ozzardi* and *Dipetalonema perstans*. None of the individuals showed symptoms of any kind. Díaz Ungría concludes by reviewing publications referring to the presence of these filariae in Venezuela.

M.MCK.

471—Nytt Magasin for Zoologi. Oslo.

- a. VIK, R., 1954.—“Investigations on the pseudophyllidean cestodes of fish, birds, and mammals in the Ånøya water system in Trøndelag. Part I. *Cyathocephalus truncatus* and *Schistocephalus solidus*.” 2, 5-51.

(471a) In the Ånøya water system in Trøndelag *Cyathocephalus truncatus* was present in *Salmo trutta* and *S. salvelinus* from 10 of the 12 lakes harbouring *Gammarus lacustris*. The variations in the infection in the different lakes depended on the variation in the density of *Gammarus* in the lakes. No distinct variation was found between the age or sex of the fish and the percentage of infection. Material was collected by net, long line, bow-net, sweep-net and fish otter and there was a distinct correlation between the technique used and the percentage of infected fish caught. Factors other than the presence of hosts and intermediate hosts appeared to affect the intensity of *C. truncatus* infection. *Schistocephalus solidus* plerocercoids occurred in 100% of the sticklebacks in six of the nine lakes in which they were present. The first and second intermediate hosts and definitive hosts are listed. When the fish host contained only one parasite this was longer than when there were two or more. Although the growth of the plerocercoid did not apparently harm the fish, death followed the penetration of its abdominal wall. Instances of encysted and dead plerocercoids were found in the abdominal cavity suggesting that the infected fish may be able to neutralize their effects and possibly acquire an immunity against reinfection for a time. Adult *S. solidus* were found in *Larus canus*, *Mergus serrator*, *Colymbus arcticus* and, for the first time, in *Bucephala clangula*. The birds could be infected by feeding them with infected sticklebacks.

R.T.L.

472—Österreichische Zoologische Zeitschrift.

- a. WIESER, W., 1954.—“Beiträge zur Kenntnis der Nematoden submariner Höhlen. Ergebnisse der österreichischen Tyrrhenia-Expedition 1952, Teil II.” 5 (1/2), 172-230.

(472a) Continuing his account of the marine nematodes collected by the “Tyrrhenia” Expedition in 1952, Wieser reports on 38 species, including illustrated, brief descriptions of *Thoracostoma (Pseudocella) cavernicola* n.sp., *T. (P.) citronicauda* n.sp., *Litinium parmatum* n.sp., *Pontonema parocellata* n.sp., *Cyatholaimus microsetosus* n.sp., *Paracyatholaimus separatus* n.sp., *Acanthopharyngoides tyrrhenicus* n.sp. and *Chromadorina nuda* n.sp. He then discusses the oecological and geographical characteristics of this submarine cavern fauna and uses seven tables to classify the relevant data. R.T.L.

473—Onderstepoort Journal of Veterinary Research.

- a. SWART, P. J., 1954.—“The identity of so-called *Paramphistomum cervi* and *P. explanatum*, two common species of ruminant trematodes in South Africa.” 26 (3), 463-473.

(473a) Detailed examination of material collected from cattle at the Pretoria abattoir has shown that two South African species hitherto identified as *Paramphistomum cervi* and *P. explanatum* are *P. microbothrium* and *Calicophoron calicophorum*. R.T.L.

474—Papers and Proceedings of the Royal Society of Tasmania.

- a. HICKMAN, J. L., 1954.—“Two new cestodes (genus *Oochoristica*) one from the lizard, *Egernia whitii*, the other from the bat, *Nyctophilus geoffroyi*.” 88, 81-104.

(474a) *Oochoristica vacuolata* n.sp. from *Egernia whitii* at Hobart is the first cestode to be recorded from Tasmanian lizards. It differs from *O. trachysauri* MacCallum, 1921 in the position and development of the uterus, in the presence of a constriction of the oviduct, in the bilobed form of the ovary, in the absence of special musculature of the atrium and in the opening of the genital ducts by a short common canal. *O. nyctophili* n.sp. from the bat *Nyctophilus geoffroyi* at Hobart can be readily distinguished from *O. taborensis* (the only other species recorded from bats) in that the testes do not occur in front of the bilobed ovary and the vitelline gland is not bilobed. It differs from species from other mammalian hosts in having a sphincter muscle surrounding the poral end of the vagina and a distinct oocapt. R.T.L.

475—Pediatrics. Springfield, Ill.

- a. JENKINS, M. Q. & BEACH, M. W., 1954.—“Intestinal obstruction due to ascariasis. Report of thirty-one cases.” 13 (5), 419-425.

476—Pediatriya. Moscow.

- a. VALDMAN, V. A., 1954.—[Treatment of enterobiasis.] Year 1954, No. 1, pp. 72-73. [In Russian.]

(476a) Valdman advocates a purely mechanical method of treating *Enterobius vermicularis* infections in children. The child is allowed to go to sleep but during the night after two to three hours' sleep, two large enemas of water containing boiled garlic are administered. This is continued for one or two weeks as a prophylactic precaution. G.I.P.

477—Phytoma. Paris.

- a. CAIRASCHI, E. A., 1954.—“Observations sur une maladie vermiculaire du tabac en Alsace.” 7 (57), 20-22.

(477a) [This paper is published also in *C.R. Acad. Agric. Fr.*, 1954, 40, 75-77. For abstract see *Helm. Abs.*, 23, No. 99b.]

478—Phytopathology.

- a. HOLDEMAN, Q. L. & GRAHAM, T. W., 1954.—“Effect of the sting nematode on expression of fusarium wilt in cotton.” 44 (12), 683–685.

(478a) Experiments indicate that *Belonolaimus gracilis* greatly facilitates the development of fusarium wilt fungus in susceptible and resistant cotton plants. The nematode causes severe damage by inhibiting the development of the root tips and causes decay of the roots. With fusarium alone there was no wilt in the resistant variety and very little in the susceptible variety. The resistant variety succumbed to wilt only when both *B. gracilis* and fusarium were present.

R.T.L.

479—Plant Disease Reporter.

- a. FASSULIOTIS, G. & FELDMESSER, J., 1954.—“Infection of eggplant, *Solanum melongena*, by the golden nematode of potatoes, *Heterodera rostochiensis*.” 38 (11), 791–793.
 b. YOUNG, T. W., 1954.—“An incubation method for collecting migratory endo-parasitic nematodes.” 38 (11), 794–795.
 c. FEDER, W. A. & FELDMESSER, J., 1954.—“The Büchner funnel as an aid in collecting and concentrating nematode populations.” 38 (12), 805–806.
 d. FIELDING, M. J., 1954.—“Experiments with Systox as a soil drench for control of the nematode, *Meloidogyne incognita*, of tomatoes.” 38 (12), 807–808.
 e. MOUNTAIN, W. B. & FISHER, J. C., 1954.—“Stunting of tomato associated with *Pratylenchus penetrans*, an apparent migrant from an adjoining peach orchard.” 38 (12), 809–810.
 f. RASKI, D. J., 1954.—“Soil fumigation for the control of nematodes on grape replants.” 38 (12), 811–817.
 g. GOHEEN, A. C. & MCGREW, J. R., 1954.—“Control of endoparasitic root nematodes in strawberry propagation stocks by hot-water treatments.” 38 (12), 818–826.

(479a) Fassuliotis & Feldmesser find that larvae of *Heterodera rostochiensis* will hatch in leachings from the roots of eggplant (*Solanum melongena*) as readily as in those from the potato. Seedling eggplants inoculated with 10,000 larvae of *H. rostochiensis* had, after 7 weeks' growth, an average of 55 cysts containing second-stage larvae.

M.T.F.

(479b) When isolating *Radopholus similis* and *Pratylenchus* sp. from avocado roots, Young obtains greater numbers by incubating the roots in Mason jars in the laboratory than by using the Baermann funnel. The roots are thoroughly washed and placed in a moist condition in the jars. The nematodes collect in the water draining from the roots and are poured off into a Syracuse watch glass for examination. The water is replaced by spraying which brings down more nematodes and this process may be repeated until nematodes cease to come down.

M.T.F.

(479c) Feder & Feldmesser use a Büchner funnel to remove nematodes from bulky suspensions. When the liquid has passed through the funnel, the nematodes are washed off the fritted glass surface in about 5 c.c. of liquid. It is claimed that the larger, more vigorous nematodes such as *Belonolaimus gracilis* do not all sink to the stem of a Baermann funnel but can be recovered in a Büchner funnel.

M.T.F.

(479d) Fielding shows that Systox does not control *Meloidogyne incognita* on tomatoes, even at concentrations which have a phytotoxic effect.

J.B.G.

(479e) Sampling of tomato plants and of the soil in which they grew indicated that *Pratylenchus penetrans* had apparently been migrating from an adjacent peach orchard and was responsible for progressive stunting of the plants. *P. minyus* was also present in the field but was evenly distributed.

J.B.G.

(479f) Premature decline in vineyards and the inability to establish replants is due to the presence of *Meloidogyne incognita* var. *acrita* and of *Pratylenchus vulnus*. Experiments showed that if a period of three years or more could elapse between vine removal and replanting, even though susceptible crops of beans were grown in that period, fumigation with D-D

mixture or ethylene dibromide gave promising results in the improved growth of newly planted vines. Poor control of nematodes was obtained where fumigation took place within three months or less of the removal of old vines. It is suggested that the fumigants did not reach eelworms contained within the roots still left in the soil. J.B.G.

(479g) The thermal death curves for *Meloidogyne hapla* and *Pratylenchus penetrans* in roots (both serious pests of strawberries) are similar and are approximately straight lines on a semi-log graph, between 121°F. (400 seconds) and 140°F. (5 seconds). Blakemore strawberry plants, winter dug and kept dormant at 30°F. for some time, were resistant to 140°F. for 6 seconds, to 130°F. for 60 seconds, to 127°F. for 5 minutes or 118°F. for 10 minutes. Plants dug, treated and replanted the same day could not stand 118°F. for 10 minutes. These treatments were sufficient to control the nematodes. For practical control the use of temperatures below 130°F. on dormant plants is recommended. J.B.G.

480—Polski Tygodnik Lekarski. Warsaw.

- a. NIEMIRSKI, A., 1954.—“Benzyna jako środek przeciw tasiemcom.” 9 (7), 211–213. [English summary p. 51*.]

(480a) Utilizing the results of Biyal's experiments which showed that pure benzine is not harmful and can be used as a taeniocide, Niemirski cured one case of *Taenia saginata* infection and 16 out of 17 cases of *T. solium* by administering, through an Einhorn's catheter, a single dose of 40 ml. to 60 ml. of pure benzine. The dose was given on an empty stomach. Vomiting was prevented by masking the benzine taste with syrup. Side effects due to the benzine disappeared within 24 hours. The author considers this drug to be one of the most effective taeniocides. G.I.P.

481—Poultry Science.

- a. RIEDEL, B. B., 1954.—“The relationship of glycine to the resistance of chickens to the round-worm, *Ascaridia galli*.” 33 (4), 742–746.

(481a) A diet inadequate in glycine content was found to retard the growth of New Hampshire chicks. Glycine fed to a level at which it promoted growth did not effect a higher degree of resistance to *Ascaridia galli*. Chickens fed with a glycine supplemented diet harboured an average of 11.1 worms, compared with 9.9 worms in birds on a low glycine diet, and the worms from chicks on the glycine supplemented diet were significantly longer than those from hosts fed on the inadequate glycine diet. In the event of a very heavy infection the glycine supplement might be more effective. D.M.

482—Poumon. Paris.

- a. DOR, J., 1954.—“A propos des connexions adventicielles du kyste hydatique du poumon.” 10 (1), 57–60. [Discussion pp. 61–62.]
b. DEMIRLEAU, J., 1954.—“Acquisitions récentes dans les kystes hydatiques du poumon. La kystectomie en plèvre libre.” 10 (2), 119–124.

483—Proceedings of the Iowa Academy of Science.

- a. ULMER, M. J., 1954.—“Precociously developed brachylaimid metacercariae within sporocysts.” 60, 631–635.

(483a) Ulmer figures and describes fully a still unidentified precociously developed brachylaimid metacercaria [for abstract of earlier report see Helm. Abs., 19, No. 337bq]. The metacercariae occasionally occur in branching sporocysts and also free in the kidney chamber of the land snail *Anguispira alternata* and the species is closely related to *Postharmostomum helcis* in the same host. R.T.L.

484—Proceedings of the Malacological Society of London.

- a. HUBENDICK, B., 1954.—"Viewpoints on species discrimination with special attention to medically important snails." 31 (1), 6-11.

(484a) Hubendick discusses the theory and practice of discriminating molluscan species and draws the conclusion that it is impossible to give any general rule stating which characters are useful for species discrimination and identification of medically important snails. R.T.L.

485—Proceedings of the Society for Experimental Biology and Medicine.

- a. OLIVER-GONZÁLEZ, J., BAUMAN, P. M. & BENENSON, A. S., 1954.—"Intradermal response to egg antigen in humans with active and treated (fuadin) *Schistosoma mansoni* infections." 87 (1), 186-188.

(485a) Oliver-González *et al.* skin tested 104 persons infected with *Schistosoma mansoni* and 21 controls with two antigens. The first was prepared from *S. mansoni* eggs obtained from the livers of infected mice and the second from cercariae from naturally infected snails. There were no false positives in the control group. In the infected group 92.5% reacted to the cercarial antigen and 35.6% to the egg antigen. This striking difference appears to be correlated with the activity of the infection, negative results with egg antigen being obtained when living eggs were apparent in the faeces. The presence of numerous eggs in the host tissue is believed to prevent skin sensitization, and this is confirmed by the observation that the skin becomes sensitive following treatment which suppresses oviposition. S.W.

486—Proceedings of the Zoological Society of London.

- a. MAHON, J., 1954.—"Observations on the abnormal occurrence of *Hymenolepis nana fraterna* cysticercoids in the liver of a rodent." 124 (3), 527-529.

(486a) The liver of a Darling's mole-rat, *Cryptomys darlingi*, was found to be heavily infected with cysts containing scolices identified as those of *Hymenolepis nana fraterna* after comparison with scolices obtained from cysts in the intestine of mice experimentally infected with scolices of adult specimens of *H. nana fraterna*. The structure of the cysticercoid from the liver appears to be intermediate between that from the gut of a vertebrate host and that in the invertebrate host of this parasite. R.T.L.

487—Publicaciones del Instituto de Biología Aplicada. Barcelona.

- a. GADEA, E., 1954.—"Sobre algunos nematodos muscícolas de la Sanabria." 17, 51-63. [English summary p. 62.]
b. DEBOUTTEVILLE, C. D., 1954.—"Premières recherches sur la faune souterraine littorale en Espagne." 17, 119-129. [English & Spanish summaries p. 128.]

(487a) Gadea has investigated the nematodes inhabiting mosses from a mountainous district in the north-west of Spain. Soil type, pH and species of moss are described for the six places from which samples are taken. The nematodes found were in small numbers: 16 species are listed of which the dominant are *Dorylaimus carteri*, *Monhystera filiformis*, *Plectus cirratus*, *Mononchus* (P.) *muscorum*, *Tripyla intermedia* and *Plectus communis*. M.T.F.

(487b) The author lists the nematodes found in a study of the fauna recovered from water which collected in holes dug in the sandy shore at three places on the Spanish Catalan coast. Twenty-four species are recorded, all in very small numbers. M.T.F.

488—Quarterly Journal of Microscopical Science.

- a. SMYTH, J. D., 1954.—"A technique for the histochemical demonstration of polyphenol oxidase and its application to egg-shell formation in helminths and byssus formation in *Mytilus*." 95 (2), 139-152.

(488a) Smyth describes a technique by which he has demonstrated the existence of polyphenol oxidase in the vitelline cells of *Fasciola hepatica* (on which most of the work was

done), *Haematoleechus* sp., *Dolichosacchus rastulus*, *Diclidophora merlangi*, *Schistocephalus solidus* and *Proteocephalus filicollis*. His findings confirm the view that the egg-shell of turbellarians, trematodes and some cestodes is a quinone-tanned protein secreted by the vitelline cells. The technique is based on the fact that when a system containing polyphenoloxidase is incubated with catechol as a substrate, *o*-quinone is formed at the sites of the enzyme and combines with and tans adjacent protein to give a reddish brown colour. Sections of frozen-dried *F. hepatica*, embedded in wax and cut in the normal way, when incubated with 0.2% freshly prepared catechol at 40°C. for 15–30 minutes showed a pinkish red colouration in the vitelline globules within 15 minutes. The technique also proved to be satisfactory for staining the vitelline system in whole mounts. S.W.

489—Rendiconti. Istituto Superiore di Sanità. Rome.

- a. RICCI, M., 1954.—“Ricerche parassitologiche nell'Isola d'Ischia. 3. Il parassitismo intestinale nella popolazione infantile.” 17 (3), 200–212. [English, French & German summaries pp. 200–202.]
- b. RICCI, M., 1954.—“Ricerche parassitologiche nell'Isola d'Ischia. 4. Note sull parassitismo intestinale nella popolazione adulta.” 17 (3), 213–217. [English, French & German summaries pp. 213–214.]
- c. RICCI, M., 1954.—“Ricerche parassitologiche nell'Isola d'Ischia. 5. Diffusione dell'ossiurossi nella popolazione infantile.” 17 (3), 218–228. [English, French & German summaries pp. 218–220.]
- d. RICCI, M. & MENNA, F., 1954.—“Sull'azione dell'esilresorcinolo verso alcuni elminti intestinali.” 17 (4), 326–332. [English, French & German summaries pp. 326–327.]

(489a) [This paper has already been published in *Riv. Parassit.*, 1952, 13, 265–276. For abstract see *Helm. Abs.*, 21, No. 514a.]

(489b) [This paper has already been published in *Riv. Parassit.*, 1953, 14, 85–88. For abstract see *Helm. Abs.*, 22, No. 139a.]

(489c) [This paper has already been published in *Riv. Parassit.*, 1953, 14, 171–179. For abstract see *Helm. Abs.*, 22, No. 258a.]

(489d) [This paper has already been published in *Riv. Parassit.*, 1953, 14, 23–28. For abstract see *Helm. Abs.*, 22, No. 49c.]

490—Report. West of Scotland Agricultural College.

- a. ANON., 1954.—“Potato root eelworm.” Year 1953–54, pp. 36–37, 38.

(490a) In the section on plant pathology a brief report is given of investigations into the effective mixing of nematicides with soil. By the use of radio-active iodine it was found that the mixing should be such that the concentration of nematicide in the top nine inches of soil does not vary by more than + or – 20%. Field experiments with ethylene dibromide suggest that it may be as effective as D-D mixture for control of potato root eelworm. Soil fumigant injectors are discussed and an assessment of the relative infestivity of white, yellow and brown potato root eelworm cysts indicates that the last has the greatest effect. It is claimed that surface treatments with 40–50 gallons of 1:1,000 mercuric chloride solution diminish the activities of stem eelworm in oats and increase the yield. The occurrence of cereal root eelworm at Auchincruive and Inchinnan is noted. M.T.F.

491—Research Bulletin of the Panjab University, Hoshiarpur.

- a. GUPTA, N. K., 1954.—“On three new species of the genus *Cephalogonimus* Poirier, 1886, from the intestine of *Lissemys punctata punctata*.” No. 49/50 (Zoology), pp. 71–84.
- b. GUPTA, N. K., 1954.—“On five new trematodes of the genus *Astiotrema* Looss, 1900, from the intestine of *Lissemys punctata punctata* and discussion on the synonymy of two already known forms.” No. 49/50 (Zoology), pp. 85–100.
- c. DHINGRA, O. P., 1954.—“Taxonomic values of chromosomes and cytoplasmic inclusions in a digenetic trematode—*Phyllodistomum spatula*.” No. 51 (Zoology), pp. 101–109.

- d. GUPTA, N. K., 1954.—“On *Mehraorchis tigrinarum*, a new species from the stomach of *Rana tigrina*.” No. 53 (Zoology), pp. 117–120.
- e. GUPTA, N. K., 1954.—“On a new species of the genus *Ommatobrephus* Nicoll, 1914, from the intestine of *Natrix piscator* in Ludhiana.” No. 54 (Zoology), pp. 121–123.
- f. GUPTA, N. K., 1954.—“On a new species of the genus *Ganeo* Klein, 1905, from the intestine of *Rana cyanophlyctis*.” No. 55 (Zoology), pp. 125–129.
- g. GUPTA, N. K. & DHILLON, B. K., 1954.—“On two new species of trematode parasites from birds in Hoshiarpur.” No. 56 (Zoology), pp. 131–137.
- h. GUPTA, N. K., 1954.—“On *Encyclometra vitellata*, a new species from water-snake, *Natrix piscator*.” No. 57 (Zoology), pp. 139–141.
- i. GUPTA, N. K., 1954.—“On *Pleurogenes* (*Telogonella*) *sawanensis* n.sp., parasitic in the intestine of *Rana cyanophlyctis* with a discussion on the systematic position of the genus *Pleurogenes* Looss, 1896.” No. 58 (Zoology) pp. 143–148.
- j. DHINGRA, O. P., 1954.—“Spermatogenesis of a digenetic trematode, *Cyclocoelum bivesiculatum*.” No. 61 (Zoology), pp. 159–168.

(491a) The intestine of *Lissemys punctata* at Hoshiarpur, India, contained three new species of *Cephalogonimus*. In *C. indicus* n.sp. the oral sucker is larger than the acetabulum, the genital pore is anterior to the oral sucker, the testes are obliquely situated, the vitellaria extend from midway between the oral and ventral suckers to the level of the middle of the anterior testis and the intestinal caeca extend to the anterior margin or the middle of the posterior testis. In *C. kumarus* n.sp. the oral sucker is larger than the acetabulum, the genital pore is anterior to the oral sucker, the testes are oblique, the intestinal caeca extend beyond the posterior testis, the vitellaria range from the middle of the cirrus sac to the anterior fourth of the anterior testis and an oesophagus is present. *C. asiaticus* n.sp. has no oesophagus, the testes are tandem and the vitellaria extend from the gut bifurcation to the middle of the anterior testis. A key differentiates the 19 species of the genus. R.T.L.

(491b) The five new species of *Astiotrema* described from *Lissemys punctata* are: *A. nathi* n.sp. in which the oral sucker is larger than the acetabulum, the oesophagus is long, the ovary spherical, the vitellaria extend from about the level of the ovary up to the posterior margin of the anterior testis, the testes are oval and the anterior testis is slightly notched anteriorly. *A. matthaii* n.sp. has a short oesophagus, the oral sucker is larger than the acetabulum, the ovary and testes are transversely elongated, the testes margins are entire and the vitellaria run from the level of the acetabulum to the middle of the posterior testis. In *A. hoshiarpurium* n.sp. the vitellaria are not confluent medially, the testes are distinctly larger than the ovary, the testes are deeply notched anteriorly and the oral sucker is larger than the acetabulum. In *A. srivastavai* n.sp. the intestinal caeca terminate near the level of the caudal margin of the posterior testis. Both testes are notched anteriorly, the ovary lies near the equatorial line and the vitellaria run from the genital pore to the hinder margin of the anterior testis. The oral sucker is smaller than the acetabulum. In *A. thapari* n.sp. the oral sucker and acetabulum are equal in size, the testes are irregular in shape and not lobed. The vitellaria run from between the intestinal bifurcation and the acetabulum to the middle of the posterior testis. *A. foochowensis* Tang, 1941 is considered a synonym of *A. orientale* Yamaguti, 1937. A key differentiates the 18 species of *Astiotrema*. R.T.L.

(491c) Dhingra has studied gametogenesis and the chromosomes in *Phyllodistomum spatula*; the diploid number is 16 with four pairs of large chromosomes, 2.5 μ to 4.5 μ in length, and four pairs of small chromosomes not exceeding 1.5 μ in length. The spermatogonia are irregularly arranged in patches on the periphery of the testes, this arrangement very closely resembling that found in *Probolitrema californiense*, *Gorgoderina attenuata* and *Gorgodera amplicava* and as the behaviour of the primordial germ cells and the spermatogonia is also very similar, Dhingra is of the opinion that these features are characteristic of the Gorgoderidae. During oogenesis large globular masses appeared and grew in the primary oocytes and it is believed that these are food reserves and that this is also characteristic of the family. Some apparently well developed oocytes were observed to degenerate but the reason for this was not

clear although they were apparently absorbed as food material. The formation of the first polar body was observed but no stage of the second meiotic division of the female cell was observed. S.W.

(491d) *Mehraorchis tigrinarum* n.sp. obtained from the stomach of *Rana tigrina* at Hoshiarpur, India, differs from *M. ranarum* Srivastava, 1933 in that the oral sucker is smaller than the acetabulum and the uterus extends beyond the ends of the intestinal caeca. R.T.L.

(491e) In *Ommatobrephus nicolli* n.sp. from *Natrix piscator*, caught in the rivulet Budha Nala near Ludhiana, the testes are lobed, the genital pore is ventral to the gut bifurcation and the vitellaria end slightly in front of the ends of the intestinal caeca, which terminate in the testicular zone. R.T.L.

(491f) In *Ganeo panjabensis* n.sp. from *Rana cyanophlyctis* the oral sucker is smaller than the acetabulum, the intestinal caeca do not extend beyond the vitellaria which are more caudal than in other species. A key differentiates the eight species and two varieties of *Ganeo*. R.T.L.

(491g) In *Cardiocephalus halcyonis* n.sp. collected from *Halcyon smyrnensis smyrnensis* at Hoshiarpur, India, the elongated body is divided by a constriction into anterior pyriform and posterior subcylindrical portions. The anterior testis is subpentagonal while the posterior testis is subtriangular. The pre-testicular ovary is oval or rounded, the vitellaria are confined to the posterior portion of the body and cover all the space between the genital organs and the body-wall. *Parastrigea duboisi* n.sp. from *Pseudogyps bengalensis* and *Aquila rapax vindhiana* differs from the three known species of *Parastrigea* in the globular shape of the anterior segment, the conspicuous lateral lobes on the margins of the two testes, the trough shape of the adhesive organ and the distribution of the vitellaria which extend anteriorly to the pharynx but are entirely absent from the post-ovarian region. A host list of the trematode parasites of eleven species of birds in Hoshiarpur is appended. R.T.L.

(491h) *Encyclometra vitellata* n.sp. was collected from *Natrix piscator* caught in the Budha Nala, a tributary of the Sutlej River at Ludhiana. Its principal characteristic is the presence of an additional transverse vitelline duct uniting the vitellaria in the posterior region of the body. R.T.L.

(491i) In *Pleurogenes (Telogonella) sawanensis* n.sp. from *Rana cyanophlyctis* at Hoshiarpur, India, the testes and ovary are not lobed. The testes lie one on each side of the mid-line, just behind and lateral to the ventral sucker. The curved cirrus pouch extends from in front of the acetabulum to the genital pore on the left body margin at the level of the oral sucker. Gupta agrees with Mehra & Negi, 1928 that the genera *Loxogenes* and *Pleurogenoides* should be discarded and *Pleurogenes* be subdivided into two subgenera *P. (Pleurogenes)* and *P. (Telogonella)*. R.T.L.

(491j) During spermatogenesis in *Cyclocoelum bivesiculatum*, the centrosomes divide and a single centrosomal granule comes to lie at the base of the spermatid nucleus and forms, together with the axial filament, the whole tail of the sperm which is both nuclear and cytoplasmic. A number of unusual structures were observed in the testes. These included small globules at the periphery which stained intensely with iron haematoxylin, larger faintly staining globules, spermatogonia which failed to divide properly and were observed in a polyaster condition or with the chromosomes scattered throughout the cytoplasm, fully developed oocytes surrounded by nourishing cells, and pycnotic masses. The diploid chromosome number is 20 and the largest pair is about 3μ long. S.W.

492—Revista Brasileira de Biologia.

- a. FREITAS, J. F. TELXEIRA DE & MACHADO DE MENDONÇA, J., 1954.—“Novo tricostrongilídeo parasito de cisne europeu (Nematoda, Strongyloidea).” 14 (4), 397-400.

(492a) *Amidostomum similis* n.sp. from *Cygnus olor* is similar to *A. cygni* Wehr, 1933 and *A. anseris* (Zeder, 1800) but the spicules are different: they each terminate posteriorly in three points, two of which are fine and medially placed and one of which is blunt and external, and all three points are surrounded by a membrane. The uterine ova measure 0.092-0.105 mm. by 0.050-0.063 mm. and are larger than those of *A. cygni*. The ventro-lateral position of the pre-anal papillae, 0.080-0.084 mm. in front of the copulatory bursa, differentiates it from *A. anseris*.

R.T.L.

493—Revista Brasileira de Gastroenterologia.

- a. VALLADARES, C. DO P., 1954.—“Capítulo sociológico da esquistosomose mansoní no Brasil.” 6 (1), 171-180. [English summary pp. 179-180.]
- b. ROSA E SILVA, G. & ANDRADE, M. V. P. C. DE, 1954.—“Da incidência da esquistosomose mansoníca em pacientes internados no Hospital dos Servidores do Estado.” 6 (2), 311-318. [English summary p. 317.]
- c. BERNACCHI, A., 1954.—“Biópsia retal e quadros retrospectivos da esquistosomose mansoníca. Revisão de 60 casos no Hospital dos Servidores do Estado.” [Editorial.] 6 (2), 325-326.

(493a) Valladares discusses the importance of sanitation in curbing schistosomiasis in Brazil and suggests greater co-ordination in tackling the problem of *Schistosoma mansoní*. He envisages schistosomiasis centres with an administrative board at Rio de Janeiro, compulsory courses organized from São Paulo to train the experts required and the planning of frequent congresses. He suggests that bibliographical services be established, maps compiled, planned research initiated, fortnightly bulletins published and specialized centres founded where the seriously infected can be efficiently diagnosed and treated.

M.MCK.

494—Revista Brasileira de Malariologia e Doenças Tropicais.

- a. AMORIM, J. P. DE, ROSA, D. DA & LUCENA, D. T. DE, 1954.—“Ratos silvestres, reservatórios do *Schistosoma mansoní* no nordeste do Brasil.” 6 (1), 13-33. [English summary p. 27.]
- b. RACHOU, R. G., 1954.—“Filariose nas Capitais Brasileiras.” 6 (1), 35-40. [English summary p. 39.]
- c. RACHOU, R. G., 1954.—“Índices epidemiológicos em inquéritos de filariose bancroftiana.” 6 (1), 41-51. [English summary pp. 50-51.]
- d. RACHOU, R. G., COSTA, J. L. & MARTINS, C. M., 1954.—“Variação do número de microfilárias de *Wuchereria bancrofti* em 3 amostras de sangue, colhidas uma imediatamente após outra, em uma mesma punção digital.” 6 (1), 53-61. [English summary p. 56.]
- e. RACHOU, R. G., LIMA, M. M., FERREIRA NETO, J. A. & MARTINS, C. M., 1954.—“*Aedes scapularis*, novo transmissor comprovado da filariose bancroftiana no sul do Brasil. Nota prévia.” 6 (1), 145.

(494a) Amorim *et al.* point out the unsuspected importance of wild rodents as reservoirs of *Schistosoma mansoní*. During an examination of wild rodents in Alagoas State, Brazil, they found 16 out of 64 *Holochilus sciureus*, 29 out of 64 *Nectomys squamipes*, 1 out of 97 *Oryzomys subflavus*, 12 out of 108 *Oxymycterus angularis* and 5 out of 280 *Zygodontomys pixuna* to be infected, and comparison of infection rates in three localities showed that human incidence was highest where infection rates in wild rodents and in *Australorbis* sp. were also highest.

M.MCK.

(494b) Rachou summarizes what is known about the incidence of filariasis in 25 Brazilian towns. *Mansonella ozzardi* and *Wuchereria bancrofti* are endemic in Manaus. Belém in northern Brazil is the most important focus of *W. bancrofti*, some 30,000 cases having been recorded there. Autochthonous cases of *W. bancrofti* have been observed in Recife, Maceió, Salvador, Florianópolis and Pôrto Alegre.

M.MCK.

(494c) Rachou defines 15 statistical indices applicable in surveys of filariasis bancrofti and proposes two new indices: "domesticity rate", which is the percentage of houses with the vector multiplied by the average number of mosquitoes per house, and the "general rate of transmission", i.e. the domesticity rate multiplied by the natural infestation rate of the mosquito. He thinks the terms "filarial disease rate" (for the percentage of persons with clinical symptoms), "filarial infection rate" (for the percentage of persons with microfilariae in the blood) and "endemic rate" (for the percentage with either clinical symptoms or microfilariae) should be replaced, respectively, by the terms "clinical rate", "microfilaria rate" and "infestation or filariasis rate". M.MCK.

(494d) Studying the reliability of microfilarial blood counts, Rachou *et. al.* made 274 observations on 27 people from Ponta Grossa and Florianópolis who harboured *Wuchereria bancrofti*. At each observation they collected three 20 cu. mm. samples of blood, one after the other, from the same digital puncture. Considerable variations, e.g. 58 to 184, 98 to 327, were observed in the counts on the three samples. They obtained microfilaria rates of 83.6% from the first samples only, 90.5% from the first two and 95.3% from all three samples. The extra accuracy obtained from applying three blood counts instead of one in routine examinations for microfilariae did not compensate for the extra trouble and cost involved. The use of a single 20 cu. mm. sample should therefore be retained. M.MCK.

(494e) During an inquiry into the epidemiology of bancroftian filariasis at Ponta Grossa in the State of Santa Catarina, Brazil, *Aedes scapularis* proved to be a new vector for *Wuchereria bancrofti*. Of 39 specimens captured from human bait outside houses, three were found to be naturally infected, one with the infective stage, two with immature forms. M.MCK.

495—Revista Brasileira de Medicina.

- a. SOUZA LEITE, A., 1954.—"A minha esquistossomose pulmonar." 11 (2), 119-120.
- b. VIANA MARTINS, A., MARTINS, G. & SIEBRA DE BRITO, J., 1954.—"Os marsupiais como reservatório da esquistossomose mansônica. (Nota prévia.)" 11 (3), 165-166. [English summary p. 166.]
- c. OLIVEIRA CASTRO, G. M. DE, 1954.—"Verde-Paris como planorbicida." 11 (3), 166-168. [English summary p. 168.]
- d. BORGES, C., 1954.—"A prova de Hanger na esquistossomose." 11 (3), 168-170. [English summary p. 170.]

(495a) Souza Leite who became infected with *Schistosoma mansoni* when handling the cercariae, describes his own pulmonary symptoms and warns laboratory workers of the risk of infection. M.MCK.

(495b) For the first time *Schistosoma mansoni* is recorded as a naturally acquired infection in a marsupial. Eggs were found in the faeces, liver and intestinal wall of an opossum, *Didelphis paraguayensis*, at Jaboticatubas, Minas Gerais, Brazil. M.MCK.

(495c) A suspension of 100 p.p.m. of commercial Paris green killed most of *Australorbis glabratus* and *A. nigricans* in 20 to 30 minutes. This product contains 1.5% to 4.5% of arsenious trioxide as an impurity. As Paris green is insoluble and the impurity is soluble in water the two components were separated by filtration and each was tested on batches of 120 molluscs; 100 p.p.m. of the Paris green killed 83 and the filtrate 16 molluscs in one hour. The mortality in 24 hours was 111 and 20, and in 48 hours 120 and 112 respectively. Of 120 controls only five had died in 48 hours. Six days after commercial Paris green had been applied at the rate of 2 gm. per sq.m. to running and standing waters all the molluscs were dead. M.MCK.

(495d) The Hanger test for liver cell disease was applied to 53 cases of intestinal schistosomiasis in Barreiro, Brazil. Of the 52 results listed, 44 proved positive and 16 highly positive. M.MCK.

496—Revista Clínica Española.

- a. ALCALÁ-SANTAELLA NÚÑEZ, R., 1954.—“Modernos tratamientos de las parasitosis digestivas.” 52 (3), 195–201.
- b. PÉREZ BRYAN, M., REYES TÉLLEZ, J. C. & RODRÍGUEZ NAVÁRRETE, A., 1954.—“Consideraciones clínicas y terapéuticas con motivo de un brote epidémico de triquinosis. (Estudio de siete casos.)” 52 (4), 264–271. [English, French & German summaries pp. 270–271.]
- c. MORA LÓPEZ, J., 1954.—“Hidatidosis subcutánea.” 52 (5), 331–334.

(496a) Alcalá-Santaella Núñez reviews the effectiveness and dosages of over twenty anthelmintics in use to-day against intestinal helminths in man. M.MCK.

(496b) In seven cases of benign trichinosis foudadin had little effect on the myalgia and only in some cases reduced the temperature. ACTH, however, reduced both the temperature and the muscle pains. M.MCK.

497—Revista del Instituto de Salubridad y Enfermedades Tropicales. Mexico.

- a. MAZZOTTI, L., 1954.—“Incidencia de *Cysticercus cellulosae* en cerdos de diferentes localidades de la República Mexicana.” 14 (2), 53–56. [English summary p. 56.]

(497a) Mazzotti tabulates the frequency of *Cysticercus cellulosae* in pigs in 18 cities in 17 Mexican States. Of the 73,386 pigs examined 4.6% were infected. The vernacular names used for the infection in Mexico include: tomate, tomatillo, sapo, sapillo, granillo, saguate, ladilla, triquina and viruela. M.MCK.

498—Revista Kuba de Medicina Tropical y Parasitología.

- a. VALDÉS DÍAZ, R., 1954.—“Prontuario terapéutico antiparasitario.” 10 (1/6), 21–27.

(498a) In this article Valdés Díaz lists 13 helminths common in man in Cuba and gives the relevant commercial (Kuba) products with details of treatment for each. M.MCK.

499—Revue Horticole de l'Algérie.

- a. FRÉZAL, P., 1954.—“Importance et répercussions de la contamination de l'Algérie par le nématode doré (*Heterodera rostochiensis* Woll.).” 58 (4), 97–101.

(499a) [This paper is published also in *C.R. Acad. Agric. Fr.*, 1954, 40, 71–74. For abstract see *Helm. Abs.*, 23, No. 99a.]

500—Revue de Médecine Vétérinaire.

- a. MOREL, P. & FOGEL, R., 1954.—“A propos d'une enzootie de strongyloïdose porcine.” 105, 273–277.

(500a) As a result of treating three farm-reared pigs suffering severely from strongyloidiasis, with phenothiazine (administered with 4 gm. of tartar emetic) followed by chenopodium oil after 18 days or chenopodium alone, Morel & Fogel favour a single strongly effective dose of chenopodium oil in preference to phenothiazine but conclude that it is difficult to eliminate the infection completely. M.MCK.

501—Revue Suisse de Zoologie.

- a. EUZET, L., 1954.—“Divers modes d'attachement des cestodes tétraphyllides.” 61 (3), 462–473.

(501a) Euzet has studied the movements and mode of attachment to the host in a number of tetraphyllid cestodes. *Phyllobothrium gracile* has four simple bothridia, each with a small accessory sucker on the anterior border, a row of small loculi on the edge and the back covered with tiny spines. The extension and retraction of the opposed pairs of bothridia alternately and the use of the anterior suckers enable the parasite to glide between the intestinal villi and

to change its position on the spiral valve. For fixation the bothridia tightly enclose several villi, the loculi act as little independent suckers and the spines prevent the bothridia from sliding between the villi. In *Orygmatobothrium musteli* the mechanisms are similar but attachment is further assured by means of a central glandular sucker and by the presence of spines on the ventral as well as the dorsal surfaces of the bothridia. *Anthobothrium cornucopia* has very mobile, stalked bothridia, without accessory suckers, which are the principal means of fixation, a condition approaching that found in the Rhinebothriinae. In *Rhinebothrium flexile* the bothridia are provided with a joint, upon which the two parts are able to fold themselves back enclosing the intestinal mucosa of the host, and have tiny spines on the back: they are divided into loculi each of which is capable of acting independently as a sucker. In *Echeneiobothrium* the bothridia are very similar to those of *Rhinebothrium* but there is, in addition, a myzorhynchus which may be muscular or glandular and takes an active part in fixation either mechanically or by means of its secretions. In *Acanthobothrium coronatum* there are hooks between the accessory sucker and the sessile bothridia. Penetration is similar to that in *Phyllobothrium* and the hooks become fixed to the villi; there is usually an inflammatory swelling of the host's tissues around the point of fixation. *Polypocephalus medusiae* possesses a globular polymorphic head with four circular suckers at the edge; the central part is concave anteriorly with a number of retractile tentacles which force their way deeply into the mucosa of the host. In *Lecanicephalum peltatum* the apical organ is a large muscular sucker, with a number of glandular cells, which appears to stick to the mucosa. In *Prosobothrium armigerum* the scolex possesses four glandular cupules and becomes deeply embedded in the tissue, presumably by chemical rather than mechanical means. An inflammatory swelling forms around the parasite, surrounding it beyond the scolex. Thus there are three types of fixation (i) mechanical by means of bothridia or myzorhynchus or apical organ, (ii) glandular by means of bothridia or apical organ and (iii) a combination of mechanical and glandular. s.w.

502—Ricerca Scientifica.

- a. CARTA, A., 1954.—“Dermatite papulare da cercarie di *Schistosoma bovis* nell'uomo.” 24 (3), 569–574. [English, French & German summaries p. 574.]

(502a) The papular dermatitis which occurs in people living in swamp areas of Sardinia is caused by the cercaria of *Schistosoma bovis*. Experimental infections of sheep and rabbits resulted in developing forms of *S. bovis*. The proportion of molluscan species present in an infective swamp was *Bulinus contortus* 70%, *Physa fontinalis* 20% and *Limnaea truncatula* 10%, while in a comparable non-infective swamp it was 10%, 80% and 10% respectively. Only *B. contortus* contained cercariae; about 40% had furcocercariae of *S. bovis*, 5% a leptocercaria and 2% carried both types.

M.MCK.

503—Rivista di Parassitologia.

- a. BIOCCA, E., 1954.—“L'opera elmintologica di Battista Grassi.” 15 (4), 200–214.
- b. ANTIPIN, D. N., 1954.—“Le vie dello sviluppo della scienza e della pratica elmintologica nell'URSS.” 15 (4), 241–248. [English summary p. 248.]
- c. AUGUSTINE, D. L., 1954.—“The origin of rural public health. With particular reference to the United States.” 15 (4), 249–251. [Italian summary p. 251.]
- d. BAER, J. G., 1954.—“Quelques considérations sur la spécificité parasitaire.” 15 (4), 253–258. [English & Italian summaries p. 258.]
- e. BIOCCA, E., 1954.—“Ridescrizione di *Ancylostoma tubaeforme* (Zeder, 1800) parassita del gatto, considerato erroneamente sinonimo di *Ancylostoma caninum* (Ercolani, 1859), parassita del cane.” 15 (4), 267–278. [English summary p. 277.]
- f. CABALLERO Y CABALLERO, E., 1954.—“Nematodos de los reptiles de México. XI. Nuevo género y nueva especie de *Filaria* de iguánidos.” 15 (4), 305–313. [English & Italian summaries p. 312.]
- g. CARTA, A. & DEIANA, S., 1954.—“Sulla biologia e morfologia della cercaria dello *Schistosoma bovis* causa di dermatite papulare dell'uomo.” 15 (4), 315–322. [English summary p. 321.]
- h. DEIANA, S., 1954.—“Osservazioni sulla penetrazione delle cercarie di *Schistosoma bovis* (Sonsino, 1876) nella pelle del coniglio.” 15 (4), 373–380. [English summary p. 379.]

- i. DISSANAIKE, A. S., 1954.—“*Giardia ovis* in the intestine of *Nematodirus filicollis*—a paraneoxenous association.” 15 (4), 381–390. [Italian summary p. 389.]
- j. GALLIARD, H., 1954.—“L'éosinophilie dans les filarioses.” 15 (4), 403–423. [English & Italian summaries pp. 420–421.]
- k. HSÜ, H. F., LI HSÜ, S. Y. & CHU, K. Y., 1954.—“Schistosomiasis japonica among domestic animals in Formosa.” 15 (4), 461–471. [Italian summary pp. 470–471.]
- l. LÓPEZ-NEYRA, C. R. & GUEVARA POZO, D., 1954.—“*Cystofilaria balkanica* Skrjabin y Schikhobalova 1948 = *Filaria* sp. Simitch, Kostitch y Mlinac 1938 = *Spirocerca lupi* (Rudolphi 1809) Chitwood 1932.” 15 (4), 481–484. [English & Italian summaries p. 484.]
- m. RODHAIN, J. & WANSON, M., 1954.—“Un nouveau cas de coenurose chez le babouin *Theropithecus gelada* Ruppell.” 15 (4), 613–620. [English & Italian summaries p. 620.]
- n. SANGIORGI, G. & RUCCI, E., 1954.—“Nostre ricerche sulle elmintiasi umane ed animali in Puglia. (Rivista sintetica).” 15 (4), 639–641. [English summary p. 641.]
- o. SARWAR, M. M., 1954.—“Studies on *Paracooperia nodulosa* (Schwartz, 1928) from Pakistan.” 15 (4), 643–650. [Italian summary p. 650.]
- p. SIMITCH, T. & PETROVITCH, Z., 1954.—“Ce qu'il advient avec des helminthes du *Citellus citellus* au cours du sommeil hibernale de ce rongeur.” 15 (4), 655–662. [English & Italian summaries pp. 661–662.]
- q. YEH, L. S., 1954.—“On some trematodes of marine fishes from New Zealand.” 15 (4), 675–684. [Italian summary p. 684.]

(503a) Biocca reviews the work of the Italian parasitologist Battista Grassi, who died in 1925, and gives a list of his 58 contributions on helminthology. M.MCK.

(503b) Antipin reviews developments in helminthology in the U.S.S.R. during the Soviet epoch. He quotes the number of known and new species which have been recorded from each of the domesticated animals, cites various recent discoveries of new intermediate hosts and deals in general terms with prevention and treatment. M.MCK.

(503d) Baer postulates that host specificity became established at different times during the evolution of the hosts and that the rate of evolution of the parasites varies according to their biotopes. From a study of the structure of their genital atria he concludes that in the Tetrabothriidae there are four distinct evolutionary directions and postulates a possible phylogenetic relationship of the avian hosts Procellariiformes, Sphenisciformes, Pelicaniformes and Gaviiformes. R.T.L.

(503e) Biocca redescribes *Ancylostoma tubaeforme* (Zeder) of cats which has erroneously been considered to be a synonym of *A. caninum* of the dog. The slightly smaller size of *A. tubaeforme*, its thicker cuticle and shorter oesophagus, differences in the morphology of the bursa and the length of the spicules which can reach 1.4 mm., justify its separation from *A. caninum* in which the spicules never exceed 1 mm. M.MCK.

(503f) *Saurofilaria grassii* n.g., n.sp. from *Sceloporus ferrariperezi ferrariperezi* in Mexico differs from the nearest genus *Macdonaldius* in the following features. It has an elliptical groove around the mouth, outside of which there are two pairs of submedian papillae. The oesophagus is clearly divided into two portions. There are eight pairs of caudal papillae in the male, of which three are pre-anal and one is lateral to the upper lip of the cloaca; two of the five post-anals are lateral, one of these being large and level with the posterior cloacal lip, two lie just behind the cloaca and are very small and one pair is some distance behind, half-way between the cloaca and tail tip. The spicules have membranous flanges and there is no gubernaculum. In the microfilariae the cephalic and caudal nuclei are elongate and the nerve ring is far from the anterior end. M.MCK.

(503g) Carta & Deiana give a detailed description and a diagram of the furcocercous cercaria of *Schistosoma bovis* from *Bulinus contortus* in Sardinia. It measures 220 μ to 265 μ and lacks a pharynx and eyespots; the excretory system consists of a bladder at the junction of the tail and body and two sinuous lateral canals receiving the secondary vessels from the flame cells, of which the formula is probably $[(2+2)+1]2=10$. The tail measures 240 μ to 280 μ and the bifurcations 45 μ to 50 μ . The cercariae are phototactic and negatively geotropic,

maintaining a vertical or slightly oblique position in the water. In repose they attached themselves by the ventral sucker to the sides of the glass tube. M.MCK.

(503h) Cercariae of *Schistosoma bovis* from naturally infected *Bulinus contortus* were allowed to penetrate the abdominal skin of rabbits. Twelve hours later most cercariae were found to have passed through the stratum corneum and stratum lucidum to the Malpighian layer where they lodged in small cavities. After 24 hours they were only found in the stratum papillare and stratum reticulare of the dermis. After 48 hours none were visible, presumably having passed into the circulatory system. M.MCK.

(503i) Dissanaïke has found numbers of the protozoon *Giardia ovis* motionless in the intestine of *Bunostomum trigonocephalum*; similar forms were multiplying in the intestine of female *Nematodirus filicollis*. Both nematodes came from the gut of sheep. M.MCK.

(503j) Although the occurrence of eosinophilia in the various filarial infections has long been recognized, its cause has not been satisfactorily determined. The periodicity of filariae in the blood has no influence on the variations in the eosinophil count; the eosinophilia differs in intensity in different countries and races. A characteristic of filarial eosinophilia is its persistence at a high level for several years. Death and disintegration of adults and microfilariae may give rise to tissue eosinophilia, sometimes resulting in eosinophilic abscesses. The allergic reaction has nothing in common with inflammation of septic origin. Hetrazan may cause a rise in eosinophilia. Cortisone induces an eosinopenia in white people but not in Africans. R.T.L.

(503k) To determine the natural host of *Schistosoma japonicum* in Formosa, where the strain is suspected to be non-human, 100 dogs, 455 water buffaloes, 230 goats and 1,522 pigs were examined post mortem by the 10% potassium hydroxide liver-digestion method, by proctoscopic biopsy or by the faecal egg-hatching, acid-ether or sedimentation methods. The potassium hydroxide liver-digestion method proved the most accurate for determining incidence, which was: dogs 62%, water buffaloes 3.5%, goats 1.7% and pigs 2.6%. These are compared with corresponding figures given by various authors for *S. japonicum* in several endemic areas of the Orient and suggest that the dog may be the normal host. It is thought that the apparent great reduction of schistosomiasis in pigs in Formosa over the last 38 years is due to the spreading practice of enclosing these animals in pens. M.MCK.

(503l) López-Neyra & Guevara Pozo conclude, from the close similarity of their measurements and morphology, that *Filaria* sp. of Simitch, Kostitch & Mlinac, 1938 (which was raised by Skryabin & Schikhobalova in 1948 to *Cystofilaria balkanica*) is synonymous with *Spirocerca lupi*. The accessory piece measuring 620 μ to 150 μ described by Simitch *et al.* is considered to be the right spicule and the measurement is regarded as a misprint for 620 μ to 750 μ . M.MCK.

(503m) Two tumours containing large numbers of coenuri identified as *Multiceps serialis* were present on the abdomen and thorax of a baboon, *Theropithecus gelada*, brought from Abyssinia and housed at Anvers Zoo. The tumours weighed together 1,980 gm. Measurements are given of 26 small and 26 large hooks taken from an invaginated and an evaginated scolex. Three dogs and four rats fed with the vesicles failed to become infected. M.MCK.

(503n) The 18 papers reporting the presence of helminths in man and animals in Apulia during the last 23 years are briefly reviewed. M.MCK.

(503o) *Paracooperia nodulosa* is recorded for the first time from a sheep. The adult is redescribed from young buffaloes in Indo-Pakistan. The fourth-stage larva has been recovered for the first time from intestinal nodules. This nematode is extremely common in young animals, although it is conspicuously absent in adults. This may account for the fact, usually attributed to a change of diet, that weaned buffaloes remain in poor condition up to the age of two years. M.MCK.

(503p) Whereas the blood and intestinal protozoa of *Citellus citellus* are not affected by the fall of temperature during winter hibernation, the adults of all its helminth species are sensitive to the lowering of the host's temperature. The sensitivity varies however. *Hymenolepis nana*, *Streptopharagus kutassi*, *Trichostrongylus* sp. and *Macracanthorhynchus hirudinaceus* are markedly more sensitive than *H. diminuta* var. *citelli*, *Moniliformis moniliformis* and *Gongylonema longespiculum*.
R.T.L.

(503q) Yeh describes three species of trematodes from New Zealand fishes. *Tubulovesicula angusticauda* (Nicoll, 1915) Yamaguti, 1934 is now recorded from the eels *Anguilla dieffenbachii* and *A. australis schmidtii*, and *T. maraenesocis* Yamaguti, 1934 is considered to be synonymous. *Grassitrema prudhoei* n.g., n.sp. from the same hosts is easily differentiated from *Lecithochirium* by the absence of lateral inward thickenings of the oral sucker and from *Sterrhurus* by the presence of a presomatic pit: the most distinctive feature of the new genus is the presence of a pre-oral sucker and a pair of powerful spherical shoulder muscles at the sides of the body between the suckers. This necessitates the placing of *Grassitrema* in a new subfamily named *Trithelaminae*. *Ptychogonimus megastoma* (Rudolphi, 1819) is recorded from the dogfish *Mustelus antarcticus*.
R.T.L.

504—Sad i Ogorod. Moscow.

- a. MITROFANOV, P. I. & VOLKOV, K. F., 1954.—[The control of *Heterodera marioni* Cornu in frames.] Year 1954, No. 7, pp. 77-78. [In Russian.]

(504a) The authors examined the efficacy of ten chemicals containing the ether of dimethyldithiocarbaminic acid and the ether of diethyldithiocarbaminic acid in the control of *Heterodera marioni*. Particularly good results were obtained when the soil was mixed with 10% ether of dimethyldithiocarbaminic acid commercially known as Cistogon. In the experimental plots when Cistogon was mixed at a rate of 100 gm. per 1 sq. m. of infested ground, tobacco and tomatoes were grown free from nematodes. It also proved effective in other small experiments carried out in flower pots. Mitrofanov & Volkov also used another chemical compound known as Forbiat, in the dose of 100 gm. of 20% Forbiat per 1 sq. m., and obtained 35% better harvest of tomatoes than in other plots, in spite of the fact that in the previous years the yield of tomatoes in experimental plots was very small.
C.R.

505—Schweizerische Medizinische Wochenschrift.

- a. HAEMMERLI, U., 1954.—"Schistosomendermatitis." 84 (32), 929-931.

(505a) Haemmerli describes the epidemiology, clinical picture and pathological anatomy of the schistosome dermatitis which has in recent years affected bathers in the Lake of Zurich during July and August. Four species of cercariae have been implicated, three of which belong to the ocellata group while the fourth has been described by P. O. Meyer as a new species, *C. turicensis* [for abstract see No. 382b above]. The first intermediary is *Limnaea ovata*; the definitive hosts so far recorded are ducks and, in a few cases, small rodents such as water rats. As a preventive measure the broadcasting of copper sulphate at a rate of 25 kg. per 100 sq. m. of water surface has been very successful at one of the Lake of Zurich bathing resorts (Wollishofen): this has to be repeated every three years. At Tiefenbrunnen the lake bed has been covered with gravel to prevent the growth of water plants: this method is more expensive. Although this dermatitis has only been reported from the Lake of Zurich, Haemmerli is convinced that it exists unrecognized throughout Switzerland.
A.E.F.

506—Sewage and Industrial Wastes.

- a. WANG, W. L. L. & DUNLOP, S. G., 1954.—"Animal parasites in sewage and irrigation water." 26 (8), 1020-1032.

(506a) The treatment of sewage at the disposal plant, Denver, Colorado consisted of short period aeration followed by primary sedimentation and finally by chlorination of the

effluent. The effluent was found still to contain 20% of the *Ascaris* ova which were present in the raw sewage; 80% of these were viable. *Trichostrongylus*, *Trichuris* and *Taenia* ova were also present occasionally. R.T.L.

507—South African Medical Journal.

- a. USBORNE, V., 1954.—“The symptoms of urinary bilharziasis in the Kwimba district of Tanganyika.” 28 (31), 641–642.
- b. DE MEILLON, B. & STOFFBERG, N., 1954.—“‘Swimmer’s itch’ in South Africa.” 28 (50), 1062–1064.

(507a) From an inquiry of 143 people with urinary schistosomiasis, in the Kwimba district of Tanganyika, Osborne has tabulated the percentage of individuals complaining of particular symptoms and the reasons given for not seeking dispensary treatment. R.T.L.

(507b) De Meillon & Stoffberg report on the first case of schistosome dermatitis recorded in Africa. *Limnaea natalensis* collected from the pool where the patient had bathed shed at least six different types of cercaria of which four were furcocercous; one closely resembled *Trichobilharzia ocellata* and when applied to the arms of three volunteers produced typical schistosome dermatitis. The authors consider that this reaction may be linked with immunization. S.W.

508—Southern Medical Journal.

- a. SOMPAYRAC, L. M., 1954.—“Creeping eruption.” 47 (8), 792.
- b. MOORE, Jr., M. P., 1954.—“The pathologic aspects of ascariasis.” 47 (9), 825–831. [Discussion pp. 831–832.]

(508a) In the treatment of creeping eruption the results were uniformly poor with stibanose and equivocal with oxytetracycline. Sompayrac considers that a good percentage of cases of creeping eruption recover spontaneously and that this may explain some of the successes previously reported. R.T.L.

(508b) Although complications in *Ascaris lumbricoides* infections are comparatively unusual, attention is drawn to the fact that they can be fatal. Five illustrative cases are cited. R.T.L.

509—Srpski Arhiv za Tselokupno Lekarstvo. Belgrade.

- a. MILOŠEVIĆ, B. & BLAGOJEVIĆ, M., 1954.—[Surgical treatment of intraocular cysticerciasis.] 82 (3), 364–371. [In Serbian: French summary p. 371.]
- b. BABIĆ, B. & PERIŠIĆ, M., 1954.—[The problem of cysticerciasis of subcutaneous tissue.] 82 (5), 636–638. [In Serbian: German summary p. 638.]

510—Tabacco. Rome.

- a. QUERQUIS, F. DE, 1954.—“L’*Heterodera marioni* ed i suoi danni ai tabacchi orientali nel Salento. Nuovi mezzi per combatterla.” 58 (663), 337–345.

(510a) After a general description of damage caused to tobacco by root-knot nematodes [*Meloidogyne* sp.] in the province of Lecce, Italy, Querquis deals briefly with the life-history of the parasite and its host range. Control by starving out the nematodes is impracticable and no resistant varieties of tobacco have been developed. It is suggested that selection of tobacco plants found locally to be resistant would be profitable. The author has observed isolated plants of the variety Erzegovina growing apparently undamaged in badly root-knot infested crops. Experiments are described in which D-D mixture proved effective as a soil fumigant and it is suggested that if this treatment is carried out every four or five years it should be possible to get satisfactory yields of tobacco. M.T.F.

511—Tidsskrift for Planteavl.

- a. LINDHARDT, K., 1954.—"Kartoffelålens forekomst i Danmark. Fortsatte undersøgelser i 1952." 57 (4), 701-705. [English summary pp. 704-705.]
- b. LINDHARDT, K. & THUESEN, A., 1954.—"Forsøg med varmtvandsbehandling af jordbaerplanter med henblik på bekaempelse af jordbaerål (*Aphelenchoides* spp.)." 58 (1), 149-168. [English summary pp. 166-168.]
- c. THUESEN, A., 1954.—"Dyrkningsforsøg med kloner af jordbaer 1948-53." 58 (1), 169-176. [English summary p. 176.]

(511a) Lindhardt has examined 17,602 soil samples from Danish fields where certified seed potatoes were grown. In 0.2% of those samples potato root eelworm was found. In certain districts samples from all gardens and potato fields were examined, totalling 6,614 samples. Only in one out of 13 parishes were heavy infestations found. Four had slight infestations. S.B.

(511b) Hot-water treatment of strawberry runners to control strawberry eelworms (*Aphelenchoides ritzema-bosi* and *A. fragariae*) as done by Staniland was tried. The temperature should not be higher than 47°C. and not lower than 46°C. for 10 minutes. Some varieties are more susceptible to damage by the treatment than others. S.B.

(511c) Comparison of eight strains of the Danish strawberry variety J. A. Dybdahl from different growers showed great differences in yield. There were no observable differences in form, size of berry or earliness but a distinct relationship with eelworm infestation, the lowest yielding strain having the plants most infested with eelworms. M.T.F.

512—Tijdschrift over Plantenziekten.

- a. LABRUYÈRE, R. E. & SEINHORST, J. W., 1954.—"Vroege vergeling bij erwten een aaltjesziekte." 60 (6), 261-262. [English summary p. 261.]
- b. SEINHORST, J. W., 1954.—"Een ziekte in erwten, veroorzaakt door het aaltje *Hoplolaimus uniformis* Thorne." 60 (6), 262-264. [English summary p. 264.]

(512a) The early yellowing of peas occurs on sandy soils. It could not be reproduced by inoculation with *Fusarium oxysporum* forma *pisi* race 3. Probably it is caused by *Hoplolaimus uniformis*, large numbers of which were present in the soil around the roots of diseased plants in several fields in Holland. R.T.L.

(512b) In gardens in Ede where the soil was heavily infested with *Hoplolaimus uniformis*, *Pratylenchus penetrans*, *P. minyus* and *Tylenchorhynchus* sp. inq., the yellowing of peas began in the lowest leaves and was associated with root rot and a reddish discolouration of the vascular bundles. These symptoms were reproduced by growing peas in soil inoculated with *H. uniformis* but not with the other nemas. R.T.L.

513—Transactions of the American Microscopical Society.

- a. RAUSCH, R., 1954.—"Studies on the helminth fauna of Alaska. XXII. *Paranoplocephala wigginsi* n.sp., a cestode from an Arctic ground squirrel." 73 (4), 380-383.
- b. RIEDEL, B. B. & FLETCHER, J. L., 1954.—"The prevention of ascarid infections in swine with phenothiazine." 73 (4), 383-392.
- c. CABLE, R. M. & QUICK, L. A., 1954.—"Some Acanthocephala from Puerto Rico with the description of a new genus and three new species." 73 (4), 393-400.
- d. VOGÉ, M., 1954.—"*Oochoristica antrozoi* n.sp., a tapeworm from the pallid bat in California." 73 (4), 404-407.

(513a) Rausch describes and figures *Paranoplocephala wigginsi* n.sp. from *Citellus undulatus barrowensis* in Alaska. *P. wigginsi* is distinguished from *P. omphalodes* (a parasite of microtine rodents) by the possession of an external seminal vesicle, the distribution of the testes and the larger cirrus sac, from *P. transversaria* in that the testes are more numerous

and the genital pores alternate irregularly (whereas in *P. transversaria* they are unilateral), and from *P. ryjikovi* (which it resembles most closely) by the external seminal vesicle and the smaller number of testes. S.W.

(513b) Riedel & Fletcher have studied the efficiency of phenothiazine against *Ascaris lumbricoides* in newly weaned pigs. The drug was given in the feed at dose rates of 1 gm., 2 gm. and 4 gm. per animal per day, 4 gm. being the maximum which could be given without making the food unpalatable. After the pigs had been receiving phenothiazine for two weeks, each was given 6,000 embryonated *Ascaris* ova. From a study of egg counts, the numbers of worms passed, the fertility and viability of the ova, and the weight gains as compared with those in the control animals, they conclude that the 1 gm. and 2 gm. dose rates are relatively inefficient and that although 4 gm. per animal per day was somewhat more effective, this dose rate is too high for continued administration to newly weaned pigs. S.W.

(513c) Cable & Quick describe and illustrate three new acanthocephalans from fish in Puerto Rico. *Neoacanthocephaloides spicicaudatus* n.g., n.sp. is described from a single male specimen collected from *Halichoeres bivittatus*. The new genus is distinguished from *Acanthocephaloides* because the body is spinose; as Yamaguti had assigned two species with body spines to *Acanthocephaloides* they are now transferred to *Neoacanthocephaloides* as *N. rhinoplagusiae* n.comb. and *N. neobythitis* n.comb. *N. spicicaudatus* is unique in having some of the body spines directed anteriorly. *Acanthosentis acanthuri* n.sp. from *Acanthurus coerulens* and *A. bahianus* is the first species of this genus to be described from the western hemisphere; it differs from the other five species of the genus in the length and shape of the trunk, the size and arrangement of the proboscis hooks, the extent of the body spination or in the host species, or by a combination of these characters. *Cavisoma* Van Cleave, 1931 is emended to include a new species, *C. chromitidis* n.sp. from *Chromis marginatus*; the new species differs from other species in the extent of the male reproductive system and the length of the lemnisci. S.W.

(513d) Voge describes *Oochoristica antrozoi* n.sp. from the intestine of *Antrozous pallidus*. The new species resembles *O. procyonis* very closely but is distinguished from it by the excretory system; this in *O. antrozoi* consists of a delicate dorsal network and a coarser, more ramified ventral network, whereas in *O. procyonis* it consists of two longitudinal ducts without ramifications. S.W.

514—Transactions of the Royal Society of South Australia.

- a. MAWSON, P. M., 1954.—“*Ichthyostrongylus clelandi* n.g., n.sp., from an Australian shark.” 77, 162–163.
- b. ANGEL, L. M., 1954.—“*Parorchis acanthus* var. *australis*, n.var., with an account of the life cycle in South Australia.” 77, 164–174.

(514a) *Ichthyostrongylus clelandi* n.g., n.sp. was found in the spiral valve of the fish *Emissola antarctica* in South Australia. The only other trichostrongyle recorded from a fish is *Trichostrongylus maci* (MacCallum, 1921) Travassos, 1937. *I. clelandi* is characterized by the head, which is bulbous with three distinct and strongly cuticularized lips. There is no buccal capsule, the vulva is posterior but not close to the anus, the spicules are simple with a dorsal spine, a gubernaculum is present, and the dorsal ray divides three times forming six branches. R.T.L.

(514b) *Parorchis acanthus australis* n.var. from *Larus novae-hollandiae* in South Australia differs from the typical *P. acanthus* mainly in the absence of an excretory tube in the tail of the cercaria. The cercariae occur as a natural infection in rediae in the molluscs *Bembicium auratum*, *B. melanostoma*, *B. nanum* and *Emozamia flindersi*. Sea-gulls were successfully infected when fed on the metacercariae. R.T.L.

515—Transactions of the Wisconsin Academy of Sciences, Arts and Letters.

- a. GUILFORD, H. G. & HERRICK, C. A., 1954.—“The effects of gapeworm disease in pheasants.” 43, 25–50.

(515a) In this experimental study of the pathology of *Syngamus trachea* in pheasants, the lungs of most of the birds showed a pneumonia from six to fourteen days after infection. The dorsal side of the lungs had dark brown, haemorrhagic areas or a uniformly cloudy, purple colour without haemorrhagic spots. In later stages, these areas were cloudy white. The number of worms in the trachea gradually decreased from the 27th to the 48th day after infection. The male worms penetrated the tracheal cartilage and were partially embedded in nodules on the outside of the trachea as early as two to three weeks after exposure to infection. Resistance to a second infection developed 37 days after the initial exposure. The worms were lost prematurely in double infections given 18 days apart. It was difficult to infect a pheasant 37 days after a small initial infection.

R.T.L.

516—United States Armed Forces Medical Journal.

- a. AQUADRO, C. F., 1954.—“Cryptitis with pinworm infestation.” 5 (8), 1209–1212.

(516a) In a case of cryptitis, two *Enterobius vermicularis* were found on excision of the anal crypt over a left lateral haemorrhoid. Excision of other crypts did not reveal any additional worms and no evidence of *Enterobius* infection was obtained after the operation by examination of the faeces or by the cellulose tape technique.

R.T.L.

517—Värtskyddsnotiser.

- a. TUNBLAD, B., 1954.—“Bekämpning av bladål med tiofosforpreparat.” Year 1954, No. 2/3, pp. 32–34.

(517a) Tunblad gives a review of some published results obtained with E.605 and Systox in the control of *Aphelenchoides olesistus*. Practical experience with the first mentioned type of chemical in Sweden shows fairly good results.

S.B.

518—Verslagen en Mededelingen van de Plantenziektenkundige Dienst te Wageningen.

- a. OOSTENBRINK, M., 1954.—“Over de betekenis van vrijlevende wortelaaltjes in land- en tuinbouw.” No. 124, pp. 196–233. [English summary pp. 227–232.]

(518a) Oostenbrink presents evidence showing the role of the migratory root eelworms, mostly species of *Pratylenchus*, *Paratylenchus* and *Hoplolaimus*, in causing damage to agricultural and horticultural crops in Holland. In Holland there appear to be seven species of *Pratylenchus*, viz., *P. pratensis*, *P. penetrans*, *P. thornei*, a species close to *P. scribneri* and three species close to *P. miryus*. *Tylenchorhynchus* spp. and *Rotylenchus erythrinae* were also found. The damage done by these eelworms is often considerable.

J.B.G.

519—Veterinaria. Sarajevo.

- a. PAVLOVIĆ, R., 1954.—“O ehinokokozi stoke na klaonici u Bijeljini.” 3 (3/4) 646–650. [English summary p. 646.]
b. VUKOVIĆ, V. & VARENIKA, D., 1954.—“*Tetrathyridium bailleti* kod kune zlatice (*Mustela martes*).” 3 (3/4), 651–652. [English summary p. 651.]

(519a) At Bijeljina the incidence of hydatid in animals slaughtered in the abattoir between 1913 and 1953 ranged from 8% to 18% in oxen, from 10% to 28% in cows, from 0% to 10% in bullocks and heifers, from 13.34% to 30% in sheep and from 10% to 20% in pigs.

R.T.L.

(519b) *Tetrathyridium bailleti*, from 1 cm. to 3 cm. long, were found in cysts of hazel-nut size encapsulated in the peri-oesophageal and peri-tracheal tissues and others, up to 8 cm. long, in the abdominal and thoracic cavities of a pine marten at Sarajevo.

R.T.L.

520—Veterinarski Arhiv.

- a. ŽUKOVIĆ, M., 1954.—“Parasiti biserke (*Numida meleagris* L.).” 24 (9/10), 226–230. [English & French summaries pp. 229–230.]
- b. VRAŽIĆ, O., 1954.—“Entoparasiti običnog fazana (*Phasianus colchicus* L.) NR Hrvatske.” 24 (11/12), 288–292. [English & German summaries p. 292.]

(520a) Among the parasites found on autopsy of 14 guinea-fowl, six to eight years old, from five districts of Croatia were *Heterakis gallinae*, *Gongylonema ingluvicola* and *Spirocerca sanguinolenta* larvae. The two latter are reported for the first time for this country. G.I.P.

(520b) Among the eight nematode species collected from 36 *Phasianus colchicus* in Croatia were *Gongylonema ingluvicola* and *Capillaria columbae*. These are recorded for the first time for this host. Vražić does not accept Madsen's opinion that *C. annulata* and *C. perforans* are synonyms of *C. contorta*. G.I.P.

521—Veterinary Medicine.

- a. HERLICH, H., DOUVRES, F. W. & STEWART, T. B., 1954.—“Trials with phenothiazine variously administered to cattle.” 49 (12), 503–505.

(521a) There was no significant difference in the efficacy of phenothiazine when administered by capsule, bolus, or water drench with or without a wetting agent to seven steers with natural worm infections. The dosage varied from 14 gm. to 20.3 gm. per 100 lb. body-weight, given as a single dose of 60 gm. The efficiency of the drug was 100% against *Haemonchus contortus*, *Trichostrongylus axei* and *Oesophagostomum radiatum*, 41.6% to 96.6% against *Ostertagia ostertagi*, 21.4% to 100% against *Bunostomum phlebotomum*, and 0% to 83% against *Cooperia punctata* and *C. pectinata*. The drench with a wetting agent appeared to be more effective against *O. ostertagi* and *Cooperia* spp. than the other three methods. G.I.P.

522—Vie et Milieu. Paris.

- a. TRAVÉ, J., GADEA, E. & DEBOUTTEVILLE, C. D., 1954.—“Contribution à l'étude de la faune de la Massane. (Première note.)” 5 (2), 201–214.
- b. TRAVÉ, J., 1954.—“Criconematidae (Nématodes Tylenchoidea) nouveaux pour la France.” 5 (2), 250–257.

(522a) By using a Baermann apparatus surmounted by an electric light bulb to induce the descent of nematodes by negative thermotropism, a number of species, including *Dorylaimus bastiani*, *D. bryophilus*, *Alaimus primitivus*, *Wilsonema auriculatum* and *Rhabditis producta* hitherto unknown in France, were recovered from soil debris collected in the forest of La Massane, near Banyuls. R.T.L.

(522b) During a study of the microfauna of the beech plantations of La Massane in the eastern Pyrenees, three species of Criconematidae hitherto unknown in France were recognized and are now redescribed and figured, viz., *Criconemoides annulifer*, *Criconema aculeatum* and *C. schuurmans-stekhoveni*. R.T.L.

523—West African Medical Journal.

- a. IKEJIANI, O., 1954.—“Studies in onchocerciasis. (I) The use of *Dirofilaria immitis* antigen in the diagnosis of onchocerciasis in West Africa.” 3 (3), 135–137.
- b. IKEJIANI, O., 1954.—“Studies in onchocerciasis. (II) The use of hetrazan (Banocide) in the treatment of African onchocerciasis.” 3 (3), 138–144.
- c. HUGHES, M. H., 1954.—“Some observations on the pathology of onchocerciasis.” 3 (4), 157–161.
- d. IKEJIANI, O., 1954.—“Studies in onchocerciasis. (III) The combined use of hetrazan and antrypol (Suramin B.P.) in the treatment of African onchocerciasis.” 3 (4), 166–168.
- e. IKEJIANI, O., 1954.—“Studies in onchocerciasis. (IV) Successful treatment with hetrazan of frequent abortion in two cases of onchocerciasis.” 3 (4), 169–171.
- f. ONABAMIRO, S. D., 1954.—“The diurnal migration of cyclops infected with the larvae of *Dracunculus medinensis* (Linnaeus), with some observations on the development of the larval worms.” 3 (4), 180–194.

(523a) Intradermal skin tests for onchocerciasis using *Dirofilaria immitis* antigen gave

positive reactions within 30-40 minutes in 90% of 214 infected persons. The remainder showed delayed reactions. The test is, however, not specific for out of 45 cases not infected with *Onchocerca* but harbouring *Ascaris* or *Trichuris* 78% gave positive reactions, and out of ten persons without either *Onchocerca* or intestinal parasites two were positive. The test is therefore not of diagnostic value in West Africa, where the majority of the population harbour intestinal parasites.

R.M.G.

(523b) A total of 214 cases of onchocerciasis were treated with hetrazan in doses varying from 2-10 mg. per lb. body-weight. This dose was given once the first day, twice the second, and three times daily thereafter, for periods ranging from 12-33 days. This was effective against microfilariae, but not against adult worms. Skin lesions began to disappear from the fourth day of treatment onwards and were cured within two months, but reappeared during the fourth month. All patients complained of pruritus and many developed rashes, pyrexia, and other forms of systemic reaction. The reactions were most violent in the 10 mg. group and this dosage had to be discontinued. These symptoms were believed to be allergic reactions to protein released during destruction of the microfilariae. They were accompanied by an increase in the percentage of eosinophils.

R.M.G.

(523c) Although *Onchocerca volvulus* is widespread in Africa and Central America in only nine instances have the results of autopsies been reported. Six further autopsies are now recorded. In none of these were microfilariae identified with certainty except in the eye, skin, and the testes and surrounding membranes. The basic lesion was cellular infiltration around the small blood vessels. The association of *Onchocerca* microfilariae with a hydrocele in one case is considered possibly significant in relation to infertility.

R.T.L.

(523d) Hetrazan given orally has an immediate although temporary effect on *Onchocerca* microfilariae while Antrypol given intravenously has a permanent but slow effect on both the adults and the microfilariae. Ikejiani recommends that these two methods of treatment should be combined.

R.T.L.

(523e) In two cases of habitual abortion presumably due to onchocerciasis the administration of 6 mg. of hetrazan per kg. body-weight resulted in pregnancies successfully reaching full term.

R.T.L.

(523f) This is a detailed account of observations, made by means of a large concrete tank modelled on a village pond, on the migrations of *Thermocyclops nigerianus* when infected with *Dracunculus medinensis*. During the first five days after infection the moderately infected cyclops were as active as the uninfected ones but thereafter they became progressively less active and on the 14th day they were practically incapable of moving more than a few inches from the bottom of the tank. From this it is deduced that the most dangerous parts of an infected pond are the margins and the bottom. Water taken from the surface of a pond where it is at least 4 ft. deep is not likely to be dangerous, since any infected cyclops active enough to swim to the surface could not have harboured *Dracunculus* larvae for the length of time required for the completion of the two moults which precede the infective stage.

R.T.L.

524—Wiener Klinische Wochenschrift.

- a. SIEGL, J., 1954.—"Fortschritte in der Behandlung der Wurmkrankheiten im Kindesalter." 66 (13), 229-232.

(524a) Siegl presents his views on the most suitable anthelmintics for children. Against tapeworms he recommends Filmaron Oil and Acranil. Against *Ascaris*, hexylresorcinol, Askaridol (Bayer) and Ascarisin (Knoll) are considered effective and dosages are also given for santonin and chenopodium oil. The two enzyme preparations Nematolyt and Vermizym are considered to be effective against *Ascaris* and *Enterobius*. Against the latter crystal violet and gentian violet preparations are mentioned as is also phenothiazine, which is said to be practically non-toxic and without side effects. Dosages and administration details for all drugs mentioned are included.

A.E.F.

525—Wissenschaftliche Zeitschrift der Humboldt-Universität zu Berlin.

- a. SPREHN, C., 1954.—“Über einige wirtschaftlich wichtige Helminthen unserer Ziegen, Kaninchen und Meerschweinchen unter besonderer Berücksichtigung ihrer praktischen Bekämpfung.” **3**, Mathematisch-naturwissenschaftliche Reihe, (1), 85–88.
- b. KUPEY, P., 1954.—“Die Gründe für das derzeitige Ansteigen der Rinderfinnenfunde.” **3**, Mathematisch-naturwissenschaftliche Reihe, (1), 89–110.
- c. TIMM, W., 1954.—“Ein weiterer Fall von *Skrjabinema ovis* (Nematoda) bei der Ziege.” **3**, Mathematisch-naturwissenschaftliche Reihe, (4), 325–326.
- d. EICHLER, W., 1954.—“Die Bedeutung der Wirtsspezifität und parasitologischen Systematik für die praktische Parasitenbekämpfung.” **3**, Mathematisch-naturwissenschaftliche Reihe, (5), 391.

(525a) Sprehn reports that of 222 goat herds in Germany, 50 were free from helminths: of the 172 infected herds, 127 had a predominance of *Ostertagia circumcincta* and 45 of *Trichostrongylus extenuatus*. Other helminths found were *Protostrongylus rufescens* (in 72 herds), *Fasciola hepatica* (in 30) and *Avitellina centripunctata* or *Moniezia expansa* (in 9). *Oesophagostomum asperum* is recorded from goats in north-west Germany. The following preparation (10 c.c. on three successive days) is recommended against anoplocephalids: 10% copper sulphate, 60 parts; potassium arsenite solution, 40 parts; hydrochloric acid, 2.6 parts. Phenothiazine is very successful against *Trichostrongylus extenuatus*. The parasites of rabbits mentioned are *Graphidium strigosum*, *Trichostrongylus retortaeformis* and *Cittotaenia ctenoides* for which treatment with phenothiazine, crystal violet and a copper sulphate-arsenic preparation, respectively, is recommended. *Paraspiodera uncinata* (Travassos, 1914) is recorded from guinea-pigs in upper Bavaria and in Bremen and may be a new record for Germany. A.E.F.

(525b) In this veterinary inaugural dissertation (Berlin), Kupey shows that the incidence of *Cysticercus bovis* in cattle has markedly increased in Germany over the past 50 years and particularly since 1945. (Figures for certain areas in the Soviet zone show an average incidence of 0.49% in 1946 and 2.2% in 1952.) This increase is attributed to (i) lack of proper rural hygiene, (ii) inadequate sewage treatment in towns, (iii) bad living conditions in the post-war years, (iv) lack of co-operation between doctors, veterinarians, housing experts and sanitary engineers, and (v) improved meat inspection since the war. Measures to reduce the incidence are discussed with particular emphasis on those directed towards improvements in rural areas. A.E.F.

(525c) Timm reports a case of *Skrjabinema ovis* infection in a one-year-old male goat from Berlin. In the uterus of one specimen were found egg anomalies which are described and illustrated with a photomicrograph. A.E.F.

(525d) This is a brief note on the importance of a knowledge of host-specificity and systematics in the control of parasites. Examples quoted include recent work on the pathogenicity of *Oxyuris equi* and on the strict host-specificity of *Strongyloides* spp. Mention is also made of the two strains of *Ascaris lumbricoides*, the varying life-cycles of lungworm species and the very different treatments needed for various lungworm species. A.E.F.

526—World Health Organization. Technical Report Series.

- a. ANON., 1954.—“Expert Committee on Onchocerciasis. First report.” No. 87, 37 pp.
- b. ANON., 1954.—“Bilharzia snail vector identification and classification (Equatorial and South Africa). Report of a Study-Group.” No. 90, 22 pp.

(526a) Various aspects of onchocerciasis are considered under symptomatology and pathology, epidemiology, control, and research. Elephantiasis, adenolymphocoele and “craw-craw” have been attributed to *Onchocerca* infection but the Committee considers that they possibly have different aetiologies. The differences between African and American onchocerciasis are important but have not yet received explanation and require further investigation. All portions of the eye, except the lens, may be invaded and a characteristic iridocyclitis is the chief cause of blindness. Choroidoretinitis and optic atrophy are much more frequent in Africa than in America and are among the most serious of the eye

affections. Allergy is one of the principal causes of pruritus and eosinophilia and causes the sever symptoms of oedema, pruritus and fever. The disease is of great social importance as both in America and in Africa infection rates up to 80% to 100% have been recorded. Blindness may reach 15.6% of the population and an even higher percentage in some districts of Africa. Plans for economic development through the construction of dams, power stations, irrigation schemes and plantations may be adversely affected. Movement of population through endemic areas may be an important epidemiological factor. The distribution and bionomics of the vectors, the possibility of so far untraced reservoirs, and fallacies arising from the fact that *Simulium* are infected in nature with non-human *Onchocerca* are discussed. Standards for epidemiological surveys are proposed and therapeutic and vector controls are reviewed. Suggestions for future research are outlined. The report concludes with annexes on methods of testing susceptibility of larval simuliids to insecticides and for the estimation of river discharge for the control of simuliids by D.D.T.

R.T.L.

527—Year Book. Institute of Inspectors of Stock of New South Wales.

- a. ROBINSON, M., 1954.—“Recent developments in molluscicides.” Year 1954, pp. 57-59.
- b. BRAY, K. S. F., 1954.—“Paramphistomiasis in cattle.” Year 1954, p. 79.

(527a) Robinson reports some of the results of using copper pentachlorophenate and sodium pentachlorophenate as molluscicides in field tests in New South Wales. The chemicals were mixed, as 2% and 10%, with talc powder and were dispersed by a knapsack duster at the rate of 2 to 7½ lb. per acre. At the higher rate the chemicals were more effective than copper sulphate but acted more slowly. Both are toxic to fish.

R.T.L.

(527b) In the irrigated area north of Hay, New South Wales, a Jersey cow died from a heavy infection of the reticulum with paramphistomes. Another cow in the same herd passed about a pint of dead flukes after receiving one ounce of thymol, and recovered. The parasite is identified by Bray as *Paramphistomum cervi*.

R.T.L.

528—Yokohama Medical Bulletin.

- a. HARADA, F., 1954.—“Investigations of hookworm larvae. III. Biological observations of infective larvae in migration towards vegetables.” 5 (3), 212-229.
- b. HARADA, F., 1954.—“Investigations of hookworm larvae. IV. On the fly as a carrier of infective larvae.” 5 (4), 282-286.

(528a) This paper deals with the behaviour of the infective larvae of *Ancylostoma caninum* and *A. duodenale* under various climatic conditions. Larvae were shown to be still active at a temperature of 11°C.-11.5°C., but the number migrating at this temperature was few compared with the number migrating at 27.5°C. At this temperature in ten hours larvae were distributed all over plants 5 cm. high, the numbers present increasing with the elapse of time. Infective larvae migrate more actively during the night than the day (probably due to an increase in humidity at night) and on plants covered with dew rather than on dry ones. The larvae are very sensitive to air humidity and the dewdrops have no direct effect on migration. On a fine day 84% of the migrating larvae were killed by the sun's rays, but on a cloudy, windless day the larval mortality was reduced to 24%. With very favourable conditions, i.e. a temperature of 25°C.-27°C. and 75%-80% humidity, the larvae migrated to a height of 30-40 cm. after 24-48 hours, corresponding very well with the lateral distance over which they could migrate under these conditions. In most cases the majority of the larvae were isolated from the lower region of the plant stems and in all cases the actual numbers migrating were only a very small percentage of the total present in the soil, many of which continued to live there for some while after the plants had been removed.

D.M.

(528b) Having observed a house-fly, bearing infective hookworm larvae from experimental materials, flying in his laboratory Harada has studied experimentally, in covered petri dishes, the role of *Musca domestica* and *Calliphora* sp. in transporting *Ancylostoma caninum*

larvae from the surface of sandy soil on which the larvae had been pipetted. One hour later 186 larvae were isolated from 5 *Calliphora* and 87 from 12 *M. domestica*. Three photographs are reproduced; in two, infective *A. caninum* larvae are clinging to the pulvillus of a blue bottle and in one the larvae are adhering to the abdomen of *Calliphora* sp. As *Muscina*, *Calliphora* and *Sarcophaga* are fond of human excreta and are apt to swarm around privies and are all of large size they may carry more hookworm larvae than other domestic flies. R.T.L.

529—Zeitschrift für Ärztliche Fortbildung.

- a. EBERT, H., 1954.—“Durch Askaridenbefall verursachtes flüchtiges eosinophiles Lungeninfiltrat bei mehreren Familienmitgliedern.” 48 (13), 442–444.
- b. FABIENKE, M., 1954.—“Bandwurmkuren mit Atebrin.” 48 (14), 498–501.

(529a) Ebert reports transitory eosinophil infiltrations of the lung in a doctor, his wife and sister-in-law, all of whom became ill after eating strawberries from the doctor's garden. Although without signs of clinical illness the doctor's children [number not stated] were found to have a 60% eosinophilia. In no case had Ascariasis been suspected but after six to eight weeks all the patients were positive for ova: the parasite had presumably been transmitted by infected strawberries. Ebert considers that more attention should be paid to the possibility of eosinophil lung infiltration when unexplained pulmonary symptoms are present. A.E.F.

(529b) Fabienke has treated a series of 34 human cases of cestode infection [species not stated] with atebirin and in 28 a complete cure was effected. Enemas were given on the evening before and on the morning of treatment and 1.0 gm. atebirin in 100 c.c. of water was administered by duodenal or jejunal sound, near to the cestode scolex. An hour later, 60 c.c. to 80 c.c. of 30% magnesium sulphate was given, also by a sound. Because of non-toxicity to the host, of its great therapeutic breadth and of the exact dosage attainable, atebirin is considered to be the remedy of choice in cestode infections. A.E.F.

530—Zeitschrift für Hygiene und Infektionskrankheiten.

- a. GAASE, A., 1954.—“Erfahrungen mit der Sero-Diagnostik der Trichinose in Deutschland.” 139 (1), 38–42.
- b. WIDMAIER, R., 1954.—“Komplikation bei Verwurmung, insbesondere beim Ascaridenbefall.” 140 (2), 169–172.

(530a) In this paper presented at the Sixth International Congress of Microbiology in 1953, Gaase summarizes earlier work done by himself and by other workers in Germany on the sero-diagnosis of trichinellosis in man. A.E.F.

(530b) Widmaier reports that human helminth infections are very widespread in the rural areas of Persia. He gives the following figures (the first number represents percentage incidence in rural areas in the province of Massandran, in the north, and the second in Kuszitan, in the south): *Ascaris*, 45, 90; *Enterobius*, 25, 30; *Taenia*, 18, 35; *Ancylostoma*, 25, nil. Ascariasis in the Near East can be very serious, with complications, and severe cases are sometimes mis-diagnosed. Widmaier describes two cases which ended fatally. A.E.F.

531—Zeitschrift für Parasitenkunde.

- a. STIEGLER, L., 1954.—“Untersuchungen über die Zwischenwirtsspezifität von *Fasciola hepatica* L. im Raume Nordbayern.” 16 (4), 322–350.
- b. STEHLE, G., 1954.—“Die gewebezerstörende Wirkung von Cercarien in Rüssel und Gehirn verschiedener Sipunculiden.” 16 (5/6), 353–362.
- c. REICHENBACH-KLINKE, H. H., 1954.—“Weitere Mitteilung über den Kiemenparasiten *Diplozoon barbi* Reichenbach-Klinke (Trematoda, Monogenea).” 16 (5/6), 373–387.
- d. GÄSSELEIN, H., 1954.—“Die Cestoden der Vertebraten aus der Umgebung von Erlangen.” 16 (5/6), 443–468.

(531a) Stiegler presents detailed reports of his experiments with possible intermediaries of *Fasciola hepatica* in order to determine how far they are of practical importance in northern Bavaria. Miracidia penetrated *Limnaea stagnalis* but did not develop beyond the sporocyst

stage. Only very few miracidia entered *L. ovata* and did not develop even to sporocysts. *Stagnicola palustris* can be ignored as a possible intermediary since miracidia did not succeed in penetrating beyond the basal connective tissue. Infection of *Radix pereger* was only successful in small snails (4 mm. shell) and sporocysts did not develop. Stiegler concludes that in northern Bavaria *Limnaea truncatula* is the only intermediate host for *F. hepatica*. A.E.F.

(531b) Encysted cercariae were present in the musculature, connective tissues and brain of 16 out of 22 *Phascolosoma vulgare* from the coast of Brittany. In the brain the metacercariae destroyed large cell complexes, while in the musculature they were enclosed in connective tissue. The special histological and chemical constitution of the giant cell sector possibly initiates chemotactic reactions in the penetrating cercariae. G.I.P.

(531c) A number of *Diplozoon*, taken from a *Puntius tetrazona*, were compared with those found in *Barbus semifasciolatus* with the result that the diagnosis of *Diplozoon barbi* is extended to cover both forms. It is confirmed that *D. barbi* is a south-east Asian species. It has been transported to Europe and has occurred occasionally in warm aquaria in western Germany. R.T.L.

(531d) Eighty-one cestode species were identified from 2,045 vertebrates collected in the neighbourhood of Erlangen: 53 were from birds, 25 from mammals, two from fishes and one from an amphibian. The collection did not contain any new species but the following are new host records: *Tatria decacantha* in *Podiceps ruficollis*, *Angularella beema* in *Riparia riparia*, *Anomotaenia aegyptica* in *Scolopax rusticola*, *A. arionis*, *Choanotaenia cingulifera* and *Hymenolepis uralensis* in *Tringa erythropus*, *Paricterotaenia parina* in *Parus major*, *Anonchotaenia bobica* in *Fringilla coelebs* and *Passer domesticus*, *A. globata* in *Aegithalos caudatus*, *Hymenolepis asymmetrica* in *Eutamias glareolus*, *Anomotaenia constricta* in *Sturnus vulgaris*, and *Pseudhymenolepis redonica* in *Crocodylus leucodon*. *Anomotaenia discoidea* is figured and redescribed. R.T.L.

532—Zeitschrift für Pflanzenkrankheiten (Pflanzenpathologie) und Pflanzenschutz.

- a. HIRSCHMANN, H., 1954.—“Unerwarteter Wiederfund tropischer Nematoden (*Radopholus oryzae* [v. Breda de Haan, 1902] Thorne, 1949, *Panagrolaimus hygrophilus* Bassen, 1940, *Atylenchus decalineatus* Cobb, 1913) an heimischen Sumpfpflanzen.” 61 (7), 352–357. [English summary pp. 356–357.]

(532a) Hirschmann describes and figures *Radopholus oryzae* associated with the roots of *Caltha palustris*. The specimens were larger than those described by T. Goodey (1936) but morphologically almost identical. She also found *Atylenchus decalineatus* and *Panagrolaimus hygrophilus* associated with roots in the mud of brooks or ponds. She suggests that the widespread occurrence of these species may be due to the microclimatic conditions of the bog where extreme temperatures are not reached either in temperate or tropical regions. She synonymizes *Panagrolaimus thienemanni* Hirschmann with *P. hygrophilus* and suggests the synonymy of *Tylenchorhynchus gracilis* with *Radopholus oryzae*. J.B.G.

533—Zeitschrift für Tropenmedizin und Parasitologie.

- a. VOGEL, H. & FALCÃO, J., 1954.—“Über den Lebenszyklus des Lanzettregels, *Dicrocoelium dendriticum*, in Deutschland.” 5 (3), 275–296. [English summary pp. 294–295.]
- b. WELLENSEK, U., 1954.—“Vergleichende Untersuchungen mit der Helmintheneier-Zählkammer von Zschucke und der sogenannten McMaster-Zählkammer unter besonderer Berücksichtigung ihrer Anwendung im chemotherapeutischen Versuch.” 5 (3), 296–301. [English summary p. 301.]
- c. ERHARDT, A., 1954.—“Chemotherapeutische Untersuchungen mit Hetrazan.” 5 (3), 302–305. [English summary p. 305.]
- d. MIMIOGLU, M., 1954.—“Parasitologische Untersuchungen bei Katzen aus Ankara.” 5 (3), 305–307. [English summary p. 307.]

(533a) Vogel & Falcão have confirmed for Germany the findings of Krull & Mapes in the U.S.A. that *Dicrocoelium dendriticum* requires an ant as a second intermediate host. The snail, *Zebrina detrita*, was used as the experimental first intermediary and attempts to infect

sheep by direct feeding with slime balls excreted by the snails were unsuccessful. Experimental infections were however produced in the ants *Formica fusca*, *F. rufibarbus* var. *fusco-rufibarbus* and *F. gagates* by feeding them with slime balls. Natural infections with *D. dendriticum* were found in four out of 314 *F. fusca* examined. One rabbit, two sheep and one mouse became infected with *D. dendriticum* when fed mature metacercariae from naturally or experimentally infected ants. The development to the metacercaria within the ant takes from 38 to 56 days at 26°C. A.E.F.

(533b) Wellensiek has compared the merits of the Zschucke counting chamber (1931) and the Wetzel modification of the McMaster chamber for counting helminth ova. She concludes that for light infections the Zschucke technique has the advantage since it picks up more eggs. For medium infections, however, the McMaster chamber is to be preferred since it works more quickly. In heavy infections the two methods are of equal merit. Wellensiek concludes that the Zschucke method has the advantage in routine examinations during chemotherapy experiments. A.E.F.

(533c) Erhardt reports that hetrazan, administered either orally or intraperitoneally, was effective against *Toxocara* infection in cats but the therapeutic dose had toxic side effects (vomiting). Against *Ancylostoma* and *Taenia* infections in cats, trichinelliasis in rats and *Aspiculuris tetraptera* in guinea-pigs hetrazan was ineffective. A.E.F.

(533d) Mimioglu reports on the parasitological examination of 150 cats in Ankara. The helminths recovered (with the number of infected cats in parentheses) were as follows: *Joyeuxia pascali* (85); *Toxocara cati* (74); *Toxocara canis* (37); *Dipylidium caninum* (24); *Taenia taeniaeformis* (14); *Toxascaris leonina* (5); *Taenia pisiformis* (3); *Capillaria aerophila* (5); *Diplopylidium nöllei* (9) and *Opisthorchis felineus* (1). The last three parasites are recorded from Turkey for the first time. A.E.F.

534—Zeitschrift für die Zuckerindustrie.

- a. JONES, F. G. W., 1954.—“Rüben nematoden in England und Wales.” 4 (8), 341–342.

(534a) This article is based on a paper given by F. G. W. Jones at a meeting of the International Institute for Sugarbeet Research in Brussels. He outlines the distribution of *Heterodera schachtii* in Britain and mentions lines of research including investigations into the responses of the larvae of several species of *Heterodera* to root diffusates from a range of host and non-host plants. By means of their responses to selected diffusates, the species of *Heterodera* present in a mixed soil population may be identified. Jones explains the regulations in England for the control of sugar-beet eelworm by crop rotation and the organization by which they are applied. Chemical control has not been found practicable and no suitable resistant plants have yet been developed. Jones points out that our knowledge of the sugar-beet eelworm has many gaps and some problems need the scientific knowledge of a chemist, physicist or experimental zoologist. Data on academic and long term investigations bring nearer the question of control. M.T.F.

535—Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene. Abteilung I. Originale.

- a. BÜSING, K. H. & FREYTAG, K., 1954.—“Die Bakterienflora der Blutegel-Harnblase. (Mitteilung über zwei neue Corynebakterien-Spezies bei Blutegeln.)” 160 (7/8), 577–585.
b. MOCHMANN, H., 1954.—“Zum fluoreszenzmikroskopischen Nachweis von Wurmeiern.” 161 (6), 416–418.

(535b) Mochmann demonstrates by a series of photomicrographs that fluorescence microscopy, although permitting specific identification, does not give such a clear picture of structural details of *Ascaris* and *Enterobius* ova as do normal and phase contrast microscopy. The value of fluorescence microscopy will probably lie in increased speed of diagnosis (especially in mass examinations) and Mochmann urges further work on this aspect. A.E.F.

536—Zentralblatt für Bakteriologie, Parasitenkunde, Infektionskrankheiten und Hygiene. Abteilung 2.

- a. NEUBECK, L., 1954.—“Studien zur Entwicklungsgeschichte von *Heterodera*-Gallen.” 107 (17/20), 432-448.

(536a) Neubeck has studied the development of galls due to root-knot eelworm in the roots of *Luffa cylindrica*. When the parasite first enters a young root there is hypertrophy of the cortex; giant cells then develop in the plerome where normally tracheids would be formed. Procambia replaces the normal parenchyme elements and no sieve-tubes are formed. At the same time the endodermis becomes two-layered and the pericycle divides to form parenchymatous tissue. Giant cells originate by the enlargement of undifferentiated plerome cells in which there is nuclear division but not cell division or through the coalescing of neighbouring cells after the break-down of their cell walls resulting in the formation of syncytia.

M.T.F.

537—Zentralblatt für Veterinärmedizin.

- a. KOTTER, L. & DEGENKOLB, E., 1954.—“Über die Bedeutung des Dunkelfeldes für die Trichinenschau.” 1 (5), 479-493. [English, French & Spanish summaries pp. 491-493.]

(537a) Kotter & Degenkolb consider that phase contrast microscopy is little suited to *Trichinella* inspection techniques. They are of the opinion that dark ground illumination, on the other hand, is of great value particularly in the recognition of uncoiled larvae and in the identification of the cell bodies. The paper is illustrated with 26 photomicrographs which compare the usefulness of phase contrast, light and dark ground microscopy in the identification of *Trichinella* larvae.

A.E.F.

538—Zoologische Jahrbücher. Abteilung für Anatomie und Ontogenie der Tiere.

- a. SCHMIDT, W. J., 1954.—“Eine Bemerkung betreffend ‘Homogenität’ der Ascariseischale zur Arbeit von Kurt Frenzen [Zool. Jahrb. (Anat.) 73, 395-424 (1954)].” 73 (4), 615-616.

(538a) In a recent paper [see Helm. Abs., 23, No. 195a] Frenzen stated that Schmidt held the view that the egg-shell substance of ascarids was homogeneous. Schmidt considers that this may be interpreted as a statement that the shell consists of only one layer. He had, however, been speaking only of the chitinous layer and quotes other papers by himself where he states that the egg-covering consists of three layers.

A.E.F.

539—Zoologischer Anzeiger.

- a. ALLGÉN, C. A., 1954.—“Kleine Mitteilungen über freilebende Nematoden I-IV.” 153 (3/4), 88-95.
b. GERLACH, S. A., 1954.—“Freilebende Nematoden aus der Lagoa Rodrigo de Freitas (Rio de Janeiro).” 153 (5/6), 135-143.

(539a) From a re-examination of material collected by the Swedish Greenland Expedition of 1899, Allgén has recognized and figured two new nematodes. *Micoletzkyia parelegans* n.sp. from east Greenland differs from *M. elegans* by the short tail, which in its anterior two-thirds is conical and uniformly thin, and by the structure of the accessory piece. *Pendulumia obtusicauda* n.g., n.sp. from the south of Pendulum Island is separated from *Cyatholaimidae* because the cuticle is smooth and the oral tooth is ventral instead of dorsal, and from *Heterocyatholaimus* because the tooth is larger and more anteriorly placed; also the body is larger than in *H. macrolaimus* and no spiral amphids were seen. Allgén also redescribes and figures *Parasphaerolaimus paradoxus* Ditlevsen, 1918 and transfers *Chromadora problematica* Ditlevsen, 1918 to a new genus *Boreomicrolaimoides* as the dorsal tooth is indistinct or lacking and ocelli are present. *Chromadora maculata* Ditlevsen, 1918 is placed in *Euchromadora* as *E. maculata* n.comb.

R.T.L.

(539b) Gerlach describes three new species of nematodes collected from the slimy mud of the shore of a brackish lagoon, connected by a canal with the sea, near Rio de Janeiro. *Dorylaimus rionensis* n.sp. resembles *D. longicaudatus* in the structure of the anterior end, the shape of the tail and the position of the pre-anal papillae but is easily distinguished by the shortness of the tail which is not more than half as long as in *D. longicaudatus*. *Polygastrophora septembulba* n.sp. is characterized by the marked narrowing of the body anteriorly, the head being only 16%-19% as wide as the posterior part of the oesophagus, by the narrow tail and by the seven oesophageal bulbs which gradually increase in size from first to last. The nearest related nematode appears to be Allgén's *Bolbella tenuicollis* but this is stated to be imperfectly described. *Theristus macroflevensis* n.sp. is very similar to *T. flevensis*, *T. ambronensis* and *T. bipunctatus* and may be only a race of the first. It differs in body size and in having long body bristles. Gerlach also describes *Oncholaimium cobbi* Kreis, 1932 and a *Paracyatholaimus* to which he gives no name since only one female was found. M.T.F.

540—Zucker.

- a. GOFFART, H., 1954.—“Gegenwartsfragen zum Rüben-nematodenproblem.” 7 (7), 130-137.

(540a) In this comprehensive review of present day problems of sugar-beet eelworm, Goffart reviews the factors causing its spread in Western Germany and the present position in other countries. He found a reduction in dry weight of 65% to 80% in sugar-beet and 90% in fodder-beet. The percentage of sugar and the proportion of soluble nitrogen to total nitrogen were higher in attacked than in healthy beet. He deals with host range and states that in Western Germany *Stellaria media* is a noteworthy host. The influence of crop rotation on the nematode population and that of soil type on the hatching of the larvae by root diffusates are discussed. Biological and chemical control methods are reviewed. D-D mixture is not suitable for large areas but combined with crop rotation it may be useful for eelworm patches. As a spray, used at 0.3%, Systox gave no control but 4 litres of 0.05% solution per square metre reduced the nematode attack on the roots but damaged the young plants. The present position with regard to the selection of nematode resistant beets and the use of wild beets as enemy plants are discussed. Legislation to reduce the danger of infestation has been introduced only in England. M.T.F.

541—Züchter.

- a. GOFFART, H. & ROSS, H., 1954.—“Untersuchungen zur Frage der Resistenz von Wildarten der Kartoffel gegen den Kartoffelnematoden (*Heterodera rostochiensis* Wr.).” 24 (7/8), 193-201.

(541a) Goffart & Ross have tested for nematode resistance 21 wild species of *Solanum* from 59 sources and several interspecific hybrids and hybrids with cultivated varieties. The seedlings were grown in infested soil and the cysts on the roots counted. The following had 0 to 8 cysts per metre of root: *S. andigenum*, *S. capsicibaccatum*, *S. aff. famatinae*, *S. microdontum*, *S. suaveolens* and *S. vernei*. By contrast, cultivated varieties and *S. acaule*, *S. chacoense*, *S. polyadenium* and *S. stoloniferum* had 278 to 648 cysts. There was great variation in some families. The root diffusates had very different effects on the hatching of the eelworms; some had a greater stimulation than the cultivated varieties so that a great number of larvae must die during development. It appears probable that resistance is inherited and is relatively dominant. Crosses with diploid and tetraploid *S. vernei* were produced. Breeding clones, or hybrids of polyploid *S. vernei* and varieties, succeeded well and gave some seedlings with high yields. M.T.F.

NON-PERIODICAL LITERATURE

- 542—MACKIE, T. T., HUNTER, III, G. W. & WORTH, C. B., 1954.—“A manual of tropical medicine.” Philadelphia: W. B. Saunders Co., 2nd edit., xxii+907 pp.
- 543—MANSON-BAHR, P. H., 1954.—“Manson's tropical diseases. A manual of the diseases of warm climates.” London: Cassell & Co., Ltd., 14th edit., xiv+1144 pp.

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